PIT AND QUARRY

JUNE 1950

New Research and Development Laboratories of the Portland Cement Assn. at Skokie, Ill.

In this Issue

New $3,000,000 Laboratory of Portland Cement Assn. • Aggregate Production at Bull Shoals and Canyon Ferry Dams • Plants of South River Sand, Torrance, L. S. Hackney, Caudell & Johnson

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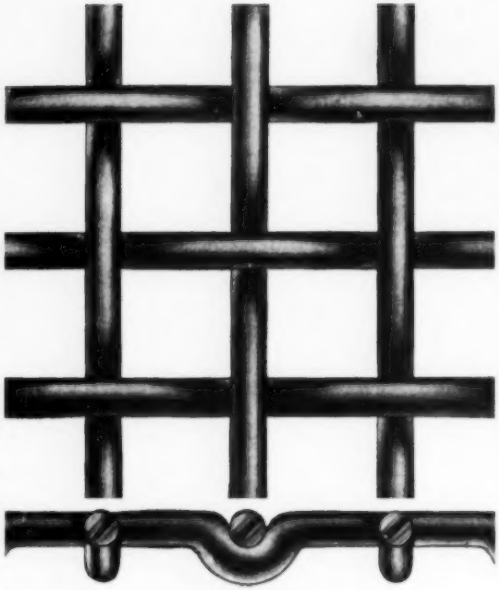
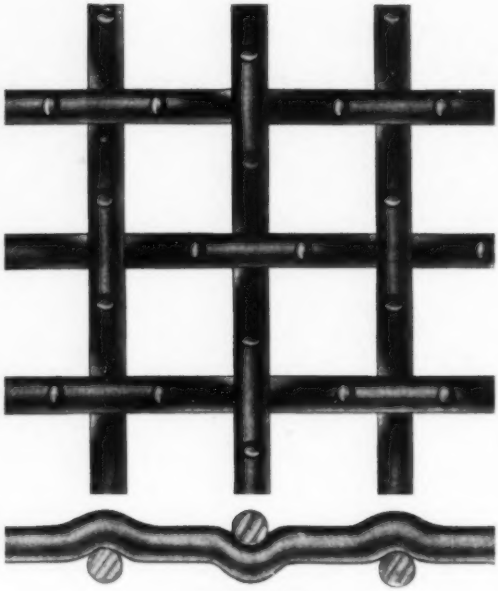


STA-SMOOTH

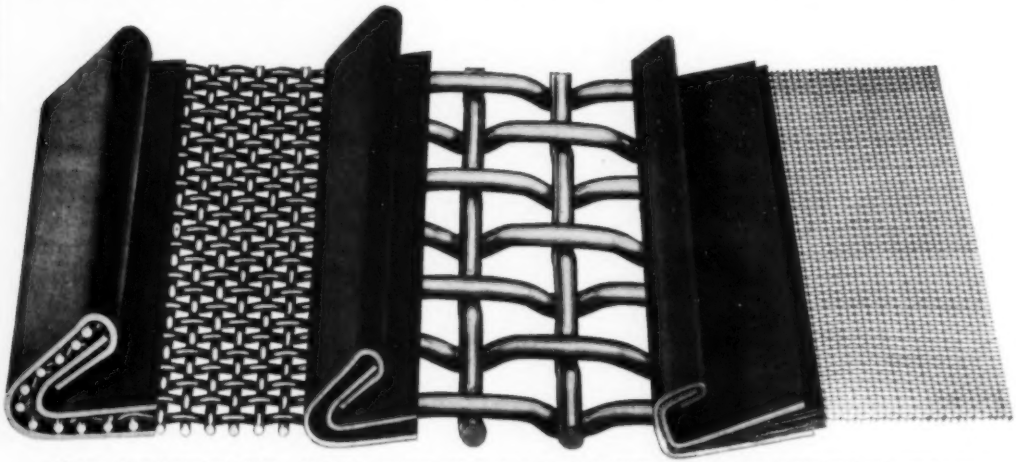


ARCH-CRIMP

SUPER-LOY VIBRATING-SCREEN SECTIONS

SUPER-HARD - - - SUPER-TOUGH - - - SUPER-STRONG

SUPER-LOY SCREENS are made from a high carbon steel specially alloyed to withstand abrasion longer — endure vibration better — resist fatigue to the utmost



ORDER LUDLOW-SAYLOR HOOK-STRIPS FOR ALL TENSIONED VIBRATING-SCREEN SECTIONS.

THE LUDLOW-SAYLOR WIRE COMPANY

634 S. Newstead Ave. ST. LOUIS 10, MO.

LINK-BELT
SCREW CONVEYOR
is Outstanding . . .

Top illustration: 12" diameter Helicoid (screw) Conveyor delivering screened mixed clay to four 12" diameter reversible Helicoid Conveyors discharging into 16 batch bins. Lower illustration: Hydrated lime from bottom of reserve storage silo being conveyed to bucket elevator by Link-Belt Helicoid (screw) Conveyor.

Link-Belt originated and is the largest producer of continuous rolled Helicoid (screw) conveyor. Link-Belt also manufactures many other types of screw conveyors, including sectional flight, in a wide range of diameters and gauges, and in various metals, including stainless steel for conveying jobs where a sanitary metal is desirable. All necessary components such as collars, couplings, hangers, troughs, box ends, flanges, thrusts, drives, etc., are also available to give you one source of supply.

Link-Belt screw conveyors are compact, occupying less space than many other types of conveyors and therefore can be adapted to close clearance locations. Loading is simple—thru spouts or from adjacent conveying mediums. Covers and joints are tight, and dust seals and spring cover clamps keep dirt out, dust inside. Installation and operating costs are low.

Link-Belt engineers will be pleased to study your conveying problem and recommend a conveyor to suit your specific needs. Contact our nearest office for unbiased recommendations.

LINK-BELT COMPANY

Chicago 9, Indianapolis 6, Philadelphia 40, Atlanta, Houston 1, Minneapolis 5, San Francisco 24, Los Angeles 33, Seattle 4, Toronto 8, Johannesburg. Offices in Principal Cities.

11,074

LINK-BELT
SCREW CONVEYORS

PIT AND QUARRY, June, 1950. Vol. 42, No. 12. Published monthly by the Complete Service Publishing Company, 538 South Clark Street, Chicago 5, Ill. Subscription price $3 for 1 year in the U. S. and possessions, Canada, Central and South America; elsewhere $2 additional for each year. Single copy 25 cents. Entered as second-class matter February 28, 1922, at the Post Office at Chicago, Ill., under the Act of March 3, 1879.

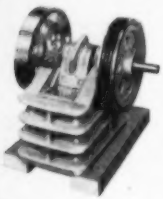
DENVER *Forced Feed* Jaw Crushers

3¼"x 4½"

$298

Price is for complete crusher with alloy iron frame, 2 flywheels for flat-belt drive. Add for grooved flywheel, V-V drive, 1 H.P. Motor and motor base. $115.

Capacity: .25 tons per hour, —¼" product.
H.P. Required: ¾.
Over-all Dimensions: (W) 16" (L) 19" (H) 17"
Specifications: Alloy iron frame, 13-14% manganese steel jaw and cheek plates (jaw plates are reversible), anti-friction bumper bearing, bronze side bearings, cast iron safety toggle.
Shipping Weight (Flat-belt drive): 365 lbs.
Shipping Wt. (V-V Drive with motor): 515 lbs.

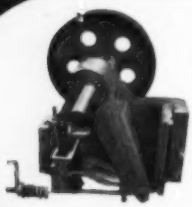


5"x 6"

$390

Price is for complete crusher with alloy iron frame, 2 flywheels for flat-belt drive. Add for grooved flywheel, V-V drive, 5 H.P. motor and motor base: $165.

Capacity: .75 tons per hour, —½" product.
H.P. Required: 3.
Over-all Dimensions: (W) 27" (L) 28" (H) 25"
Specifications: Alloy iron frame, 13-14% manganese steel jaw and cheek plates (jaw plates are reversible), anti-friction bumper bearing, bronze side bearings, cast iron safety toggle.
Shipping Weight (Flat-belt drive): 1000 lbs.
Shipping Wt. (V-V Drive with motor): 1225 lbs.

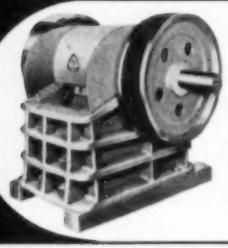


8"x 10"

$920

Price for complete crusher with alloy iron frame, 2 flywheels for flat-belt drive. (Crusher with cast steel frame $1065.) Add for grooved flywheel, V-V Drive, 10 H.P. motor and base: $272.

Capacity: 1.3 tons per hour of —½" product.
H.P. Required: 10.
Over-all Dimensions: (W) 42" (L) 45" (H) 39"
Specifications: Alloy iron or cast steel split frame, 13-14% manganese steel jaw and cheek plates (jaw plates are reversible), anti-friction bumper bearing, bronze side bearings, cast iron safety toggle.
Shipping Weight (Flat-belt drive): Alloy iron 2600. Steel 2650 lbs.
Shipping Weight (V-V Drive with motor): Alloy Iron 3010 lbs. Steel 3160 lbs.



9"x 16"

$1795

Price is for complete crusher with cast steel frame, 2 flywheels for flat-belt drive. Add for grooved flywheel, V-V drive, 15 H.P. motor and motor base: $436.

Capacity: 3 tons per hour, —½" product.
H.P. Required: 12-15.
Flywheel Speed: 250-300 R.P.M.
Over-all Dimensions: (W) 61" (L) 55" (H) 43"
Specifications: Cast Steel Frame, 13-14% manganese steel jaw and cheek plates (jaw plates are reversible), anti-friction bumper bearing, bronze side bearings, cast iron safety toggle.
Shipping Weight (Flat-belt drive): 5850 lbs.
Shipping Wt. (V-V Drive with motor): 6435 lbs.

Capacities are based on medium hard material weighing 100 lbs. per cubic foot.

8"x 10" crusher frame is cast in 2 pieces, can be sectionalized for mule-back transportation.

IN STOCK FOR QUICK DELIVERY

PRICES: Prices are firm through May, June and July 1950. Above prices are f.o.b. Denver or Colorado Springs, Colorado packed for domestic shipment only. Prices for export are slightly higher and include rugged export packing.

LARGER SIZES: Crushers up to 24"x 40" and portable crushing units are also available.

ORDER TODAY! When ordering please advise electrical characteristics. Right-hand crushers as shown will be furnished unless left-hand drive is specified. Crushers will be shipped via lowest transportation cost unless otherwise specified.

DENVER EQUIPMENT COMPANY 24 HOUR SERVICE

FLOTATION ENGINEERS

DENVER • NEW YORK • CHICAGO • EL PASO

TORONTO • VANCOUVER • MEXICO, D. F.

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"The firm that makes its friends happier, healthier, and wealthier"

DENVER EQUIPMENT COMPANY
1408 SEVENTEENTH STREET • DENVER 17, COLORADO

GET the tire that's odds-on favorite with rock haulers everywhere—Goodyear's Hard Rock Lug. It's so tough you can't beat it for stamina and mileage on tire-killing rock work. Like all Goodyear work tires, the Hard Rock Lug is job-designed for maximum performance on a particular hauling job. Its carcass is extra-tough, is protected against bruising by an extra-thick undertread—big, tough lug bars armor its tread and sidewalls against cuts and rips—it provides positive traction, forward or reverse, with its self-cleaning universal tread. All in all it's your best bet for cutting costs—stepping up performance. Remember, always BUY and SPECIFY Goodyear—it pays!

THE HARD ROCK RIB

Companion tire for front wheels in rock work—specially designed to give you easier steering, smooth rolling, same tough body, same shoulder construction as the Hard Rock Lug.

THE ROAD LUG

Specially designed for trucks that operate both OFF and ON the road. This remarkable dual-purpose tire combines off-the-road toughness and traction with on-the-road mileage and economy.

Road Lug—T. M. The Goodyear Tire & Rubber Company, Akron, Ohio

First—because proved best!

GOODYEAR

MORE TONS ARE HAULED ON GOODYEAR TIRES THAN ON ANY OTHER KIND

Jaw Plates Cost Less Than...

1 CENT A TON

Low Bidding Depends on Low Cost Crushing

KUE-KEN* 30" x 9" CRUSHER shown is crushing hard river gravel and has run 18 months on the original jaw plates. They have not been turned once. When reversed should give an additional 14 months service. Jaw plates on previous crusher were completely worn out in three months time.

This Kue-Ken operates in closed circuit with a screen. 100% minus 1½" and 100% minus 1", depending on requirements. Capacity of plant 800 tons per 8 hours to 1½", about 50% through the crusher. In 18 months operation 90% of total production has been 100% minus 1". The previous crusher was unable to produce anything finer than 1½".

ANOTHER OPERATOR uses a 30" x 12" Kue-Ken Crusher rated at 34 tons per hour of 2" rock actually gets 80 to 125 tons per hour. The feed is extremely hard river boulders. In the same plant a 24" x 10" Kue-Ken produces 75 tons per hour of 3" rock. The catalog rating is only 54 tons per hour.

Longer Jaw Plate Life and Bonus Capacity gives lowest cost crushing to Kue-Ken users.

Write today for Bulletin 605

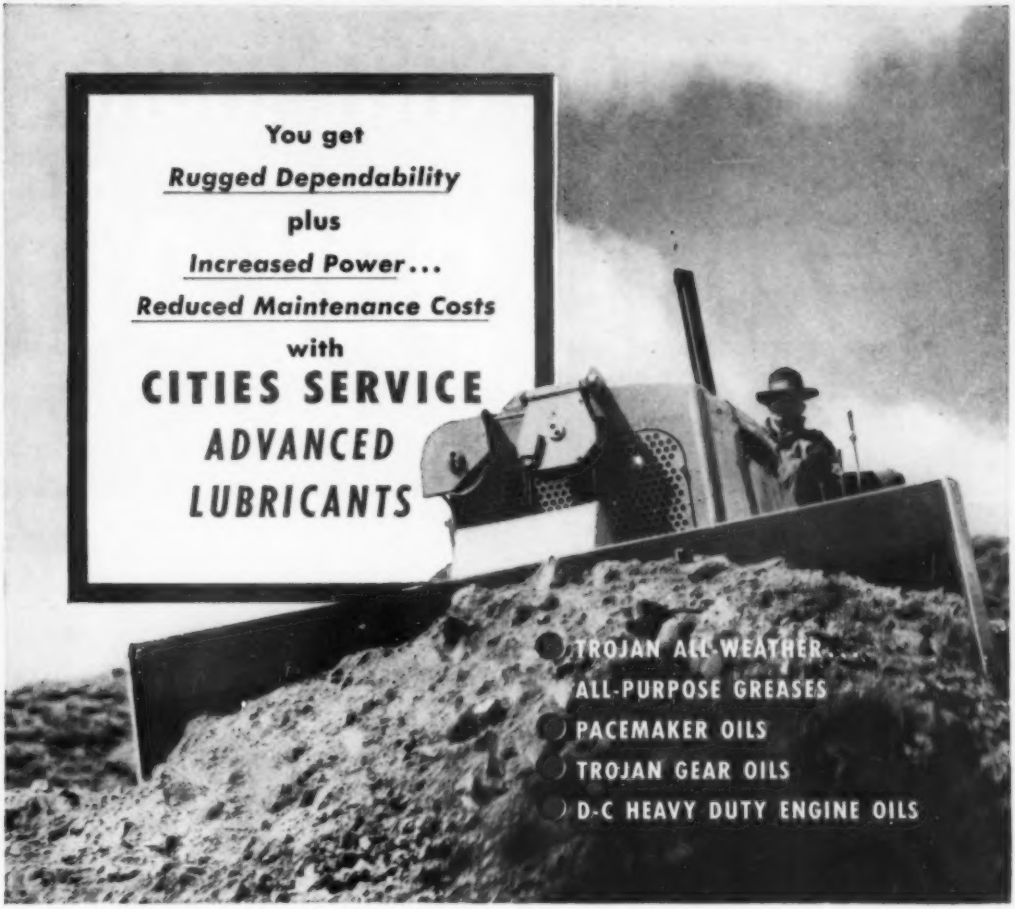
Exclusive manufacturer for Eastern U. S., Canada and Puerto Rico: Pennsylvania Crusher Co., Broad and Arch Sts., Philadelphia, Pa.

*Pronounced Que-Ken. U. S. and Foreign Patents Pending.

STRAUB MFG. CO.

542 CHESTNUT ST. • OAKLAND 20, CALIFORNIA

Kue-Ken Balanced Crushers	Rib Cone Ball Mills	Overflow Classifiers
Kue-Ken Simplex Crushers	Concentrating Tables	Feeders
Kue-Ken Gyratory Crushers	Overhead Eccentric Crushers	Screenwheel Classifiers



EARTH MOVING and construction equipment like this powerful bulldozer takes severe punishment in even normal operation. Protect it from excessive wear . . . improve its performance with the finest lubricants available.

Cities Service has a remarkable new line of all-weather, all-purpose lubricants. These top quality petroleum products slash maintenance costs . . . reduce equipment down-time . . . step up the efficiency and power of all units under all kinds of heavy duty operating conditions. Learn today how you can gain big increases in the productive capacity of your units. Mail coupon below.

VALUABLE FREE BOOKLET

Our new manual "Earth Moving and Construction Machinery Lubrication" is a handy, fact-filled guide to perfect lubrication. Write today.

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New York 5, New York

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The Tractor that makes 'dozing pay off

★ "Caterpillar" Diesel D8 Tractor, with matching No. 8A 'Dozer, cleaning away waste at the open-pit mine of the Dicalite Division of the Great Lakes Carbon Corporation, near Basalt, Nevada. This unit slugs away at the job whether the Nevada temperature is zero in the sun or 110 in the shade. These "Caterpillar" units are ideal for high-power, low-cost stripping, road construction, pusher loading of scrapers, and general utility and cleanup work.

It's hard to beat "Caterpillar" Diesel Tractors for back-breaking pit and quarry 'dozing jobs. They mean top results with the *power*, *capacity*, and *dependability* they offer. Like the one above, cleaning up in an open-pit mine.

"Caterpillar" Diesel Tractors slug away at the job tirelessly. They have the right horsepower for the job load. And this means they work quickly and without fuel waste – keep everlastingly at it to save you money by continuous, big-production performance under the most severe service. These big yellow machines are precision-built to keep going 24 hours a day without "soldiering" on the job. And remember that *absenteeism* of machines through down time is more costly than lost man-power time!

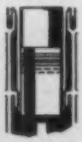
When the tractor behind the tough-tooled, maneuverable blade is "Caterpillar"-built, you've got a hard-to-beat combination for any 'dozing assignment. Your "Caterpillar" matched team is backed up by a one-manufacturer, one-dealer combination that saves you time and money. And "Caterpillar" double-covers your emergency problems with a network of spare-parts depots spotted throughout the nation to give you emergency service on all replaceable items – current *and* non-current!

Your "Caterpillar" dealer is the man to see for further details. He welcomes competitive questions because "Caterpillar" machines thrive on comparison. Precision-built of quality materials, they're in there swinging day after day and year after year.

CATERPILLAR TRACTOR CO. • PEORIA, ILLINOIS

LOOK UNDER THE HIDE *for the qualities that pay off in tractor performance and long life . . . you'll find them in every "Caterpillar" detail. For example:*

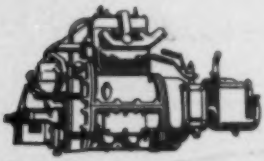
Hard Chrome-Faced Compression Rings are standard on all models of "Caterpillar" Diesel Tractor Engines —increasing life and performance at critical point of engine design.



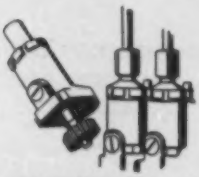
Alloy Iron Wet Type Cylinder Liners are "Hi-Electro" hardened — giving exceptionally long life. Wearing surface is chemically treated for proper break-in.

Solid Aluminum Alloy Connecting Rod and Main Bearings are exclusively "Caterpillar." Advantages: low rate of wear; fine heat-transfer characteristics; high corrosion resistance.

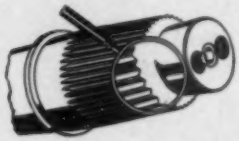
Air-Cooled "Lube" Oil. Air cooling lowers oil temperatures — reducing carbon, minimizing gum formations, and adding to the efficient serviceable life of working parts.



Independent Starting Engine of exclusive "Caterpillar" design gives safe-and-sure starts at all times, and allows the Diesel to build up full oil pressure before starting.

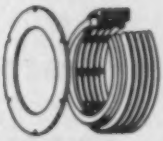


"Caterpillar"-Built Fuel Injection System is perfectly matched for "Cat" Engines. Pumps and valves require no adjustments, and are replaceable in the field—like spark plugs.



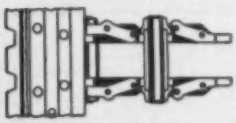
Tapered Splines—specially developed by "Caterpillar"— lock sprockets securely to shafts. So effective have they proved that the principle is similarly applied to other vital parts.

"Hi-Electro" Hardened Final Drive Gears. Teeth are three times harder after treatment and gear life is further boosted by the favorable compressive stress this process supplies.



Bellows Seals are self-aligning, self-adjusting and self-lubricating—keep oil in, dirt and water out without need for take-up adjustment or periodic attention.

Correct Track Alignment, both vertically and laterally, is assured with this rigid roller frame. Heavy diagonal brace and widely spaced bearings add life to tracks and rollers.



Counterbored Track Links — to provide a tighter, better sealed joint and greater bearing surface between bushings and track pins. Extra assurance of long life in abrasive soils!

Hour Meter to give user the facts on tractor performance and life. Hour meters have always been standard on "Cat" Engines because "Caterpillar" has nothing to hide.

CATERPILLAR

DIESEL ENGINES • TRACTORS • MOTOR GRADERS
EARTHMOVING EQUIPMENT

IT COSTS *LESS* TO OWN THE BEST!

No. 36 GEARLESS PRIMARY CRUSHER

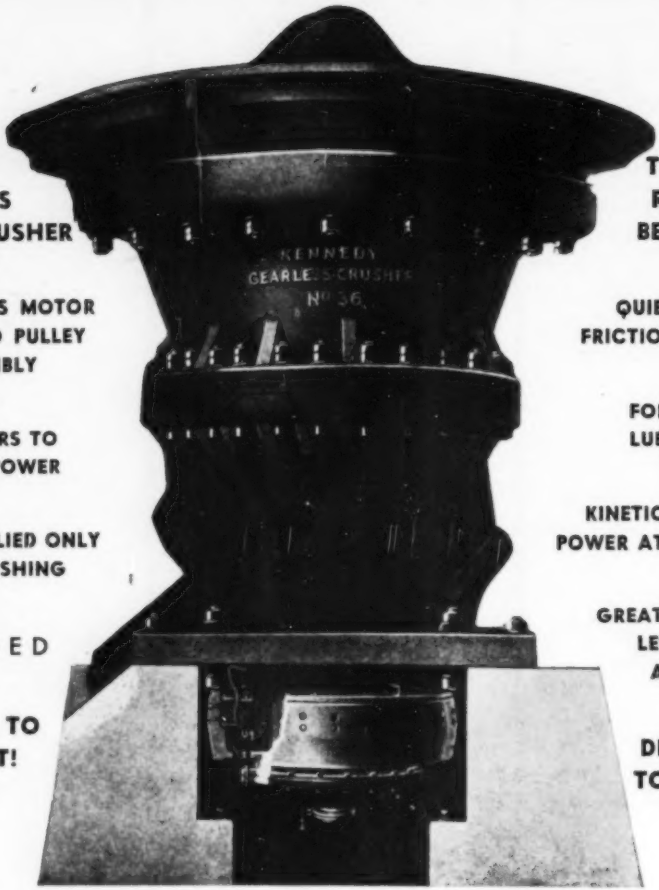
SYNCHRONOUS MOTOR BUILT INTO PULLEY ASSEMBLY

NO GEARS TO WASTE POWER

POWER APPLIED ONLY FOR CRUSHING

RUGGED

BUILT TO LAST!



TYPE "S" ROLLER BEARINGS

QUIET, SMOOTH FRICTIONLESS ACTION

FORCED FEED LUBRICATION

KINETIC ENERGY ADDS POWER AT NO EXTRA COST

GREATER CAPACITY LESS POWER ALL SIZES

DESIGNED TO CRUSH!

A primary crusher of great capacity, designed to produce maximum loads of uniform products. Rugged construction assures freedom from "time off for repair." Cuts down maintenance costs, increases output, delivers more rock tonnage, faster and at lower cost.

KVS crushers are built in sizes from 12 to 3600 ton per hour capacities. 250% starting torque and 300% pull out torque permit starting of fully loaded crusher. Low power consumption assures economical operation; elimination of gears, belts and countershafts overcome frictional losses, increase efficiency.

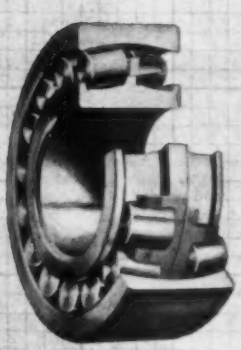
The oiling system in the Kennedy Gearless Crusher is perfect. Approximately 4 barrels of oil per hour are constantly pumped through the bearings and there is no waste—no spillage of oil. It is the most perfect oiling system that was ever put on a crusher. These crushers have been known to run for many years without renewals to the eccentric.

KENNEDY-VAN SAUN MFG. & ENG. CORPORATION

TWO PARK AVENUE, NEW YORK 16, N. Y.

Marion type 43-M excavators swing smoothly into every job

on TORRINGTON SPHERICAL ROLLER BEARINGS



SPHERICAL ROLLER
TAPERED ROLLER
STRAIGHT ROLLER
NEEDLE
BALL
NEEDLE ROLLERS

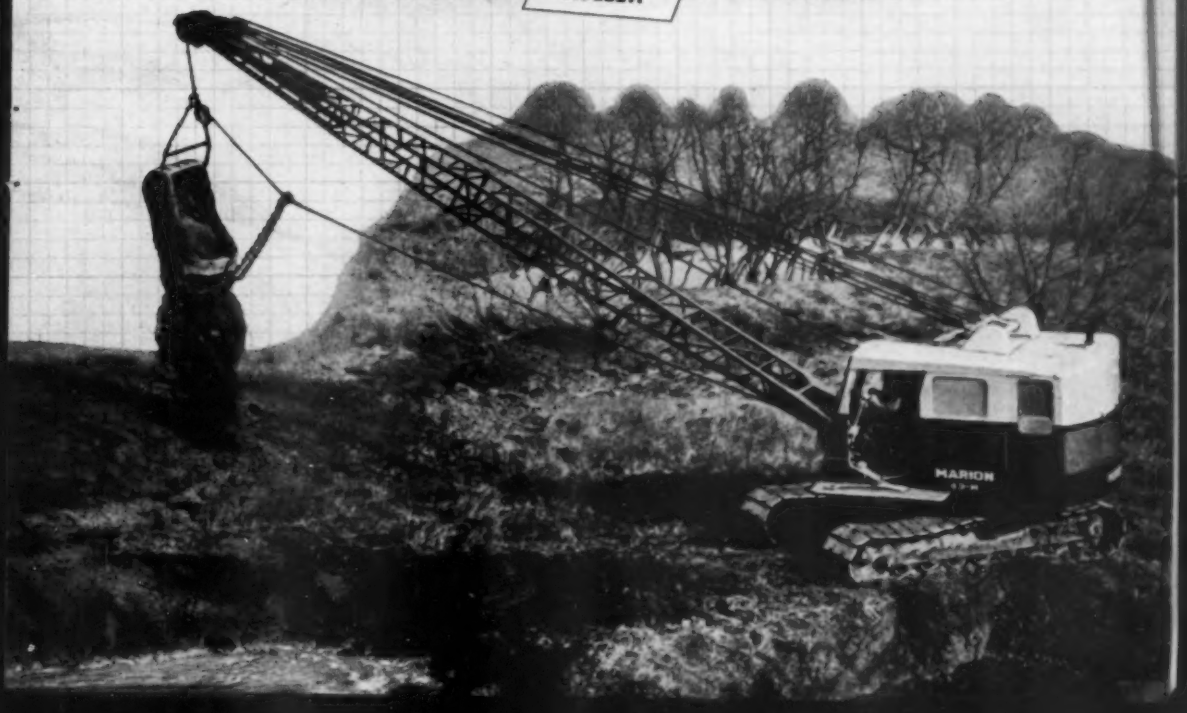
The Marion Type 43-M excavator is designed for all-purpose work—as a one cubic-yard shovel, clamshell, dragline, backhoe, crane or pile driver. It's also designed to swing easily under load, with Torrington Spherical Roller Bearings on the center journal.

These heavy-duty bearings provide free-rolling self-alignment under shaft deflection. Uniform load distribution is maintained constantly, assuring long service life with minimum maintenance.

You can build extra performance and stamina into your equipment by specifying Torrington Spherical Roller Bearings. Let our engineers help you work out the details of your applications.

THE TORRINGTON COMPANY
South Bend 21, Ind. • Torrington, Conn.
District Offices and Distributors in Principal Cities of United States and Canada

TORRINGTON *SPHERICAL ROLLER* **BEARINGS**

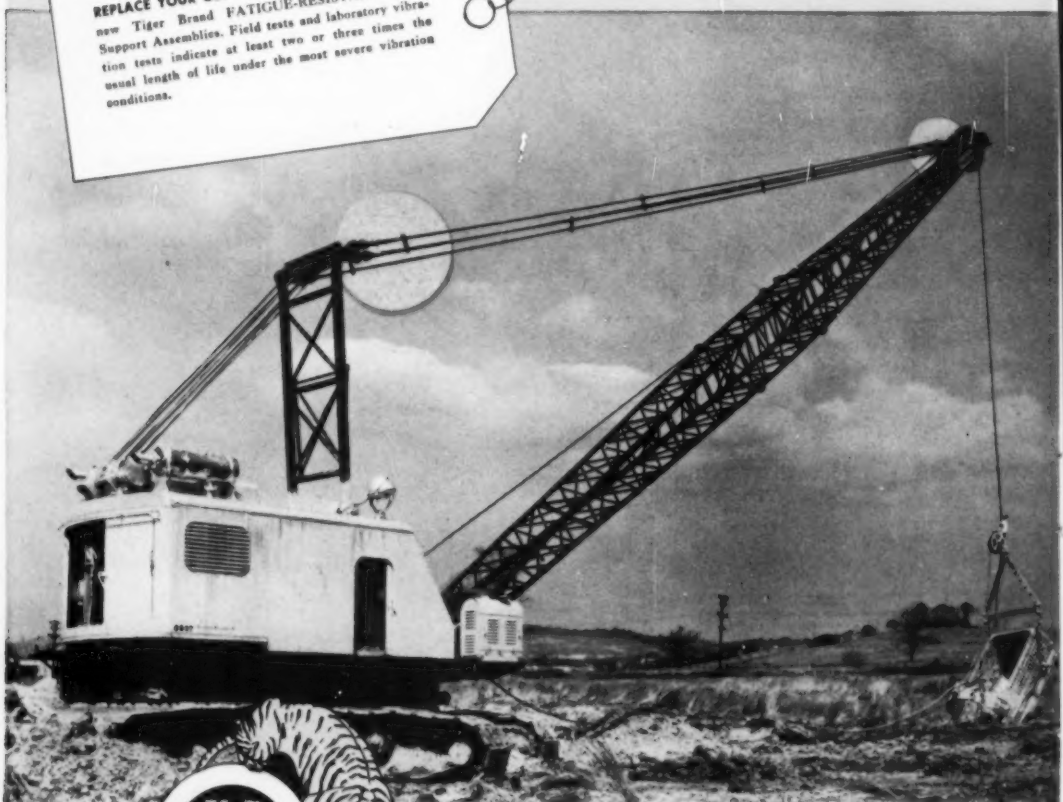


2 to 3 times longer

with these new Fatigue-Resistant

An exclusive development of
AMERICAN STEEL & WIRE COMPANY

REPLACE YOUR OLD BOOM SUPPORTS with these new Tiger Brand FATIGUE-RESISTANT Boom Support Assemblies. Field tests and laboratory vibration tests indicate at least two or three times the usual length of life under the most severe vibration conditions.

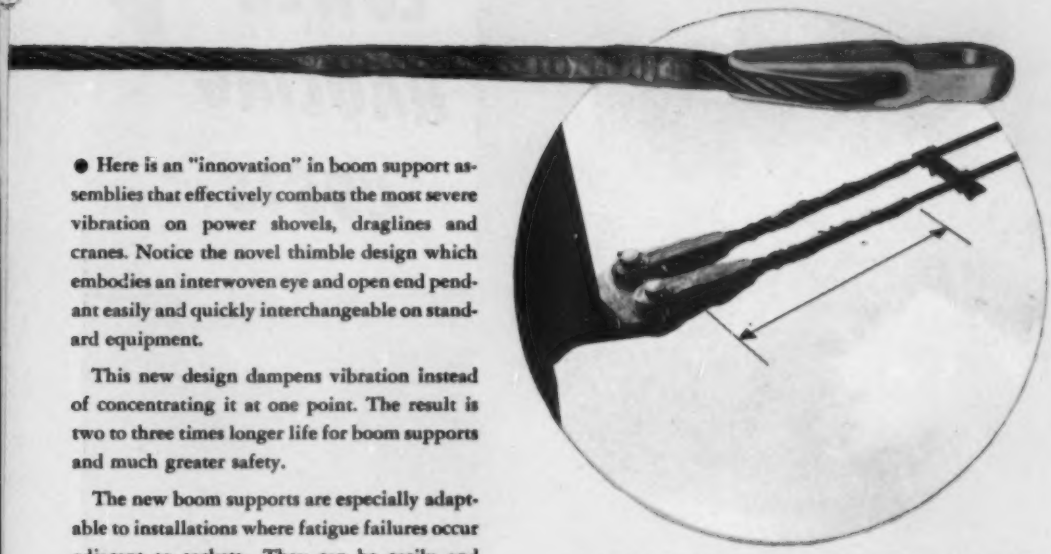


USS AMERICAN TIGER BRAND WIRE ROPE UNITED STATES STEEL

NEW TIGER BRAND FATIGUE-RESISTANT BOOM SUPPORT ASSEMBLIES on a 5 cu. yd. dragline near Pittsburgh, Pa.

life for boom supports

Tiger Brand Cable Assemblies



● Here is an "innovation" in boom support assemblies that effectively combats the most severe vibration on power shovels, draglines and cranes. Notice the novel thimble design which embodies an interwoven eye and open end pendant easily and quickly interchangeable on standard equipment.

This new design dampens vibration instead of concentrating it at one point. The result is two to three times longer life for boom supports and much greater safety.

The new boom supports are especially adaptable to installations where fatigue failures occur adjacent to sockets. They can be easily and quickly adapted to your present equipment because essential dimensions such as pin diameters, distances between ears, etc., are the same as for standard open and closed sockets.

Fatigue-Resistant Boom Supports are an exclusive development of American Steel & Wire Company. Send the coupon for complete information.

VIBRATION EFFECTIVELY DAMPENED HERE over a long section instead of being concentrated at one point.

AMERICAN STEEL & WIRE COMPANY, GENERAL OFFICES: CLEVELAND, OHIO
COLUMBIA STEEL COMPANY, SAN FRANCISCO
TENNESSEE COAL, IRON & RAILROAD COMPANY, BIRMINGHAM, SOUTHERN DISTRIBUTORS
UNITED STATES STEEL EXPORT COMPANY, NEW YORK

American Steel & Wire Company
Rockefeller Building, Dept. H-60
Cleveland 13, Ohio

Please send me complete information on your new Tiger Brand Boom Support Assemblies.

Name.....

Title.....

Company.....

Address.....

City.....State.....

AMERICAN TIGER BRAND WIRE ROPE

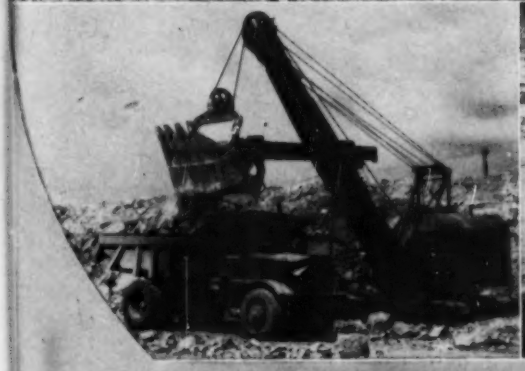
Excellay Preformed

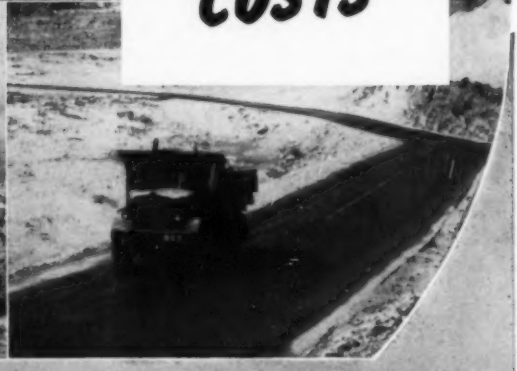
UNITED STATES STEEL

THE EUCLID WAY

to

LOWER HAULING COSTS





Designed and built to move big loads of rock and heavy excavation, Rear-Dump "Eucs" are cutting haulage costs at quarry and open pit mining operations in all parts of the world.

Here's one example: seven Rear-Dump "Eucs" of 15-ton capacity replaced an industrial rail system at a quarry of the Consumers Company at McCook, Illinois. Hauling costs have been cut 40 per cent.

Two shovels of 3½ yd. capacity load the well-blasted stone into Euclids for a haul of 3,070 feet to the plant. Maximum grade on the loaded haul is 9.5%. During an eight-hour shift, the Euclids make 340 trips, hauling 5,440 tons. Production of lime and crushed stone for agricultural and industrial use averages from 600 to 700 tons per hour.

Your Euclid Distributor will be glad to show you the Euclid way to lower hauling costs on your quarry or open pit jobs. If you prefer, write direct for information on the complete line of Euclid equipment for moving earth, rock, coal, and ore.

The EUCLID ROAD MACHINERY Co., Cleveland 17, Ohio

EUCLIDS *Move the Earth*

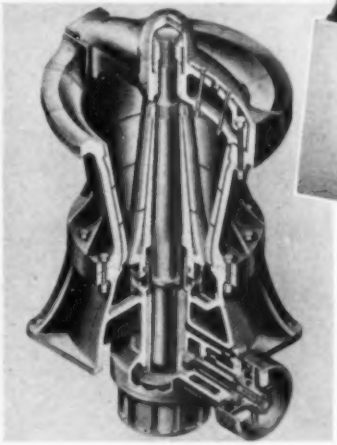
for more TONS per hour
. . . more PROFITS per ton

Traylor

TYPE TC
GYRATORY CRUSHER

Inside and out, this rugged Traylor Bulldog is built for continuous, heavy-duty production—at less cost per ton—day after day. Every square inch of its massive frame is packed with outstanding design features that insure trouble-free operation with a minimum of attention. Best of all, Traylor's famous curved concaves and bellhead are now included as standard equipment

The large 42" crusher illustrated at right was fabricated in four sections for convenience in lowering through a mine shaft to an under-ground crushing plant.



Curved Concaves and Bell Head cut downtime . . . stop power waste

With each feed zone in the crushing chamber having greater capacity than the one before it, *choking and packing is eliminated.* The vice-like action of the curved crushing surfaces stops lifting and churning of material . . . cuts power costs per ton. Write for more complete description to see how this superb crusher can increase your profits.

Traylor

Rotary Kilns, Coolers and Dryers
Grinding Mills · Crushing Rolls
Jaw, Reduction and Gyratory Crushers

TRAYLOR ENGINEERING & MANUFACTURING CO.
157 Mill St., Allentown, Pa.

Sales Offices: New York, N. Y., Chicago, Ill., Los Angeles, Calif.
Canadian Mfrs: Canadian Vickers, Ltd., Montreal, P. Q.

A "TRAYLOR" LEADS TO GREATER PROFITS

FIRST CHOICE FOR POWER*

Ford INDUSTRIAL ENGINES

Ford "254" Power Unit
6 cylinder; 254 cu. in. displacement
(also available in open type power unit or engine assembly only)

More and more leading equipment builders are making Ford Industrial Engines and Power Units their "first choice" power sources. Makers of agricultural machinery . . . air compressors . . . derricks and hoists . . . lumber and sawmill equipment . . . pumps . . . road and construction machinery and the like have made Ford Power standard equipment on their products because it's the power that's right 3 important ways.

1. **RIGHT POWER**—five power sizes from which to choose . . . each one complete, ready to run.

2. **RIGHT FEATURES**—every model has all the benefits of Ford's famed progressive engineering.

3. **RIGHT SERVICE**—as near as the nearest Ford Dealer, clear around the world.

Bring your power problem to your Ford Dealer, to the Ford District Sales Office nearest you or the Ford Industrial Engine Department. There's a Ford Industrial Engine that's *right* for your job.

***FORD INDUSTRIAL ENGINES**

are offered as complete power units or as individual units, either open or closed, both with a wide variety of special attachments. They are made in the following types and sizes:

120 CU. IN. 4 CYLINDER
226 CU. IN. 6 CYLINDER
254 CU. IN. 6 CYLINDER
239 CU. IN. V-TYPE 8 CYLINDER
337 CU. IN. V-TYPE 8 CYLINDER

Your Job is Well-Powered when it's Ford-Powered

INDUSTRIAL ENGINE DEPT., FORD MOTOR COMPANY, DEARBORN, MICHIGAN

Send me complete details on your Industrial Engines and Power Units.

Name _____

Street _____

City _____ State _____

—CLIP AND MAIL THIS COUPON NOW!—

Industrial Engine Department
FORD MOTOR COMPANY
Dearborn, Michigan

EIMCO 104 RockerShovel

For loading rock, sand, gravel, ore concentrates or other materials, it's the 104 RockerShovel! This revolutionary new type of loading equipment is new only in the economy it provides contractors with material handling and loading problems.

The RockerShovel principle is not new — contractors who have had underground jobs are familiar with the sturdy underground models of RockerShovels, and many of them who now operate the 104 crawler mounted machine say, "This is the machine we've been waiting for."

The 104 loads at the rate of 5 yards per minute in rock or 8 yards per minute in sand and gravel using a 1¼ or 2 yard bucket respectively.

Furnished with a 48 HP Diesel engine or 30 HP Electric motor the 104 is ready to go when delivered to your property.

Eimco 104 RockerShovel is a heavy-duty machine for the toughest kind of loading jobs. See how one contractor licked his sand and gravel job — write for bulletin L1021, or see your Caterpillar Dealer.

EIMCO

THE EIMCO CORPORATION

The World's Largest Manufacturers of Underground Rock Loading Machines

EXECUTIVE OFFICES AND FACTORIES: SALT LAKE CITY 8, UTAH, U.S.A.

BRANCH SALES AND SERVICE OFFICES

NEW YORK 20 SOUTH STREET • CHICAGO 1010 CHICAGO BUILDING

HOMESTAKE BLDG. 1140 FRANKLIN ST. • DENVER 1700 WELTON STREET

EL PASO TEXAS MILLS BUILDING • BUTTE 1000 SOUTH MONTANA STREET

SPOKANE 2 SPOKANE BUILDING • SAN FRANCISCO 4 111 SUTTER STREET

SEATTLE 4 HOGE BUILDING • LOS ANGELES 14 1127 WALL STREET

AFFILIATED COMPANIES: SOCIETE EIMCO PARIS FRANCE

EIMCO (GREAT BRITAIN) LTD. LEEDS 11 ENGLAND

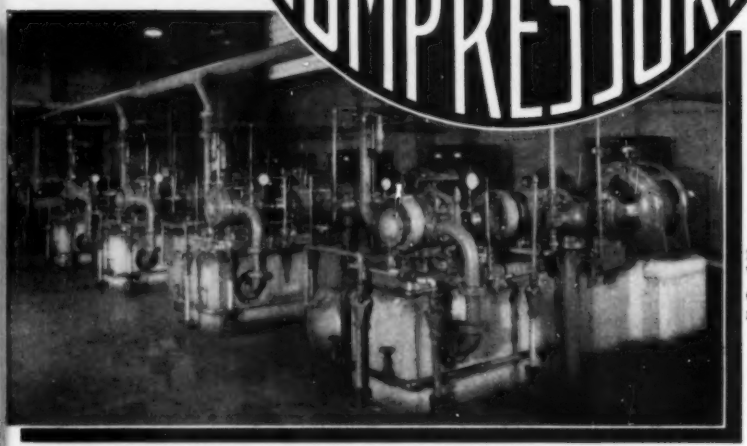
AGENTS IN ALL PRINCIPAL CITIES THROUGHOUT THE WORLD

A-250

CAPACITIES TO 3300 C. F. M. ACTUAL FREE-AIR DELIVERY

FULLER ROTARY COMPRESSORS

PRESSURES TO 100-125 LB. GAGE



Installation of four Fuller Rotary Two-stage Compressors.

Capacity each, 490 c.f.m., 125-lb. gage pressure.

From time to time, we meet with potential compressor customers, who, for some unknown reason, have formed the opinion that Fuller Rotary Compressors are only good for low-pressure service.

This, however, does not agree with the facts, as we are in a position to furnish, and have furnished, hundreds of machines for 100 to 125-lb. pressure, which are giving the same efficient and dependable service as units for lower pressure ranges.

The first compressors built by this company (and which are still going strong), were of the two-stage type for 100-lb. service. It was some time before we began the manufacture of single-stage machines for the lower pressures required in various industries.

Bulletin C-5, illustrates and describes Fuller Rotary Compressors and Vacuum Pumps. We'll be glad to send you a copy. We invite your inquiries and investigation the next time you are in the market for compressors or vacuum pumps.

FULLER COMPANY
CATASAUQUA—PENNSYLVANIA
Chicago 3 - 120 So. LaSalle St.
San Francisco 4 - 420 Chancery Bldg.

No. 1 of a series

C-191

A LIFETIME OF NEW MACHINE EFFICIENCY

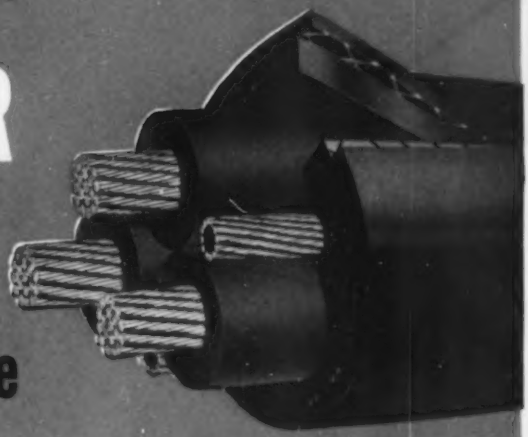
FULLER

Anaconda introduces

COLD RUBBER

in SECURITYFLEX

600-Volt Mine Cable



NEW INSULATING MATERIAL LENGTHENS CABLE LIFE, CUTS SERVICE FAILURES

FIRMER AND TOUGHER, cold rubber makes Securityflex* Type G 600-Volt Mine Cable still more resistant to injury by moisture, crushing and cutting. Exhaustive tests show definitely that this improvement lengthens cable life, reduces power interruptions and lessens cable maintenance, trouble and expense.

RUBBER-CORED GROUND—Securityflex Type G 600-Volt Mine Cable also provides the famous patented rubber-cored ground wire construction. The rubber core provides larger ground wire diameter, and reduces tendency of the grounding wires to cut the cable conductor insulation.

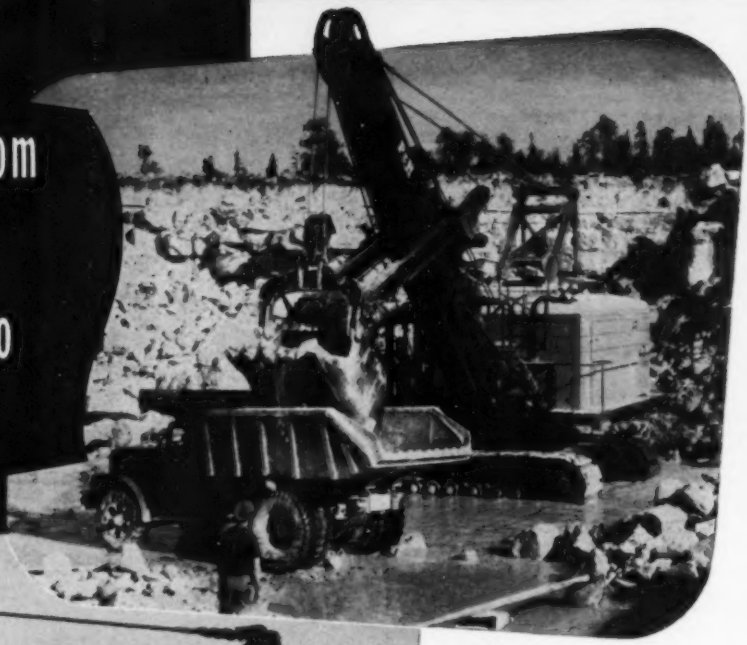
FIRM SUPPORT GIVES PROTECTION—An additional advantage of rubber coring is the cushioning support it gives every wire in each ground wire strand against displacement and damage when the cable becomes twisted.

Examine this cable. Check its construction, see its advantages. Just call your nearest Anaconda Sales Office or Anaconda Distributor. Anaconda Wire & Cable Company, 25 Broadway, New York 4, New York.

*Reg. U. S. Pat. Off.

The right cable for the job ANACONDA® WIRE AND CABLE

For Rock Bottom Costs From Start to Finish!



START . . . FLUXING STONE
A P&H Model 1400 Diesel-Electric (4 yd.) shovel, owned by Drummond Dolomite Inc. at Drummond Island, Michigan.

FINISH . . . BLAST FURNACE SLAG
A P&H Model 1400 Diesel-Electric shovel owned by the Buffalo Slag Co., Buffalo, New York.

P&H DIESEL-ELECTRIC SHOVELS

with *MAGNETORQUE** HOIST DRIVE

Now, you can have electric shovel efficiency *anywhere* with a P&H Diesel-Electric quarry and mining shovel. It's a complete electric shovel . . . with the addition of a diesel engine to furnish power . . . entirely independent of high line service.

Years of the toughest rock digging have proved the P&H Diesel-Electric from every standpoint . . . dependable operation . . . less maintenance . . . rock bottom tonnage costs.

This simplified P&H Diesel-Electric shovel is made possible by the exclusive P&H Magnetorque Hoist Drive. Hoist generator, hoist motor, slip friction clutch and other mechanical devices are completely eliminated. Magnetorque is only one of many P&H Added Values. Ask for Bulletin X83-DE.

Every Third P&H Electric Shovel Sold is a Repeat Order.

*Trade-Mark of Harnischfeger Corporation for electro-magnetic type clutch

P&H ELECTRIC SHOVELS
4451 West National Avenue
Milwaukee 14, Wis.

HARNISCHFEGER CORPORATION

Above: Belt conveyors on Link-Belt Type "100" idlers feeding ground clay to brick presses.

Through the A. P. Green Fire Brick Company's huge plant at Mexico, Mo., flow veritable rivers of fire clay into storage, into grinding, screening and pugging operations and to the huge brick presses. Link-Belt engineering and Link-Belt built equipment, including idlers, welded steel pulleys and driving machinery provide an integrated conveyor system that aids materially on maintaining high production at lowest cost.

Success of Link-Belt conveyor installations in raising production rates and cutting handling costs, with a minimum of maintenance, is due not only to the most advanced design and construction of Link-Belt carrying and return idlers, but also to:

- properly designed terminal drive machinery.
- efficient discharge chutes at terminal and discharge points.
- a design of welded steel pulleys that reduces shaft deflection.
- highest mechanical efficiency in speed reducers, direct coupled or chain driven.
- engineering experience to produce the proper relationship between pulley diameter and ply thickness of belt; also between size of material handled and conveyor belt width, equality of rubber covering, carcass specifications, etc.

The user gets the benefit of this experience when he selects Link-Belt belt conveyor equipment—idlers, trippers, drives, pulleys, bearings, take-ups, belts.

Consult Link-Belt conveying specialists on any phase of conveying and mechanical power transmission.

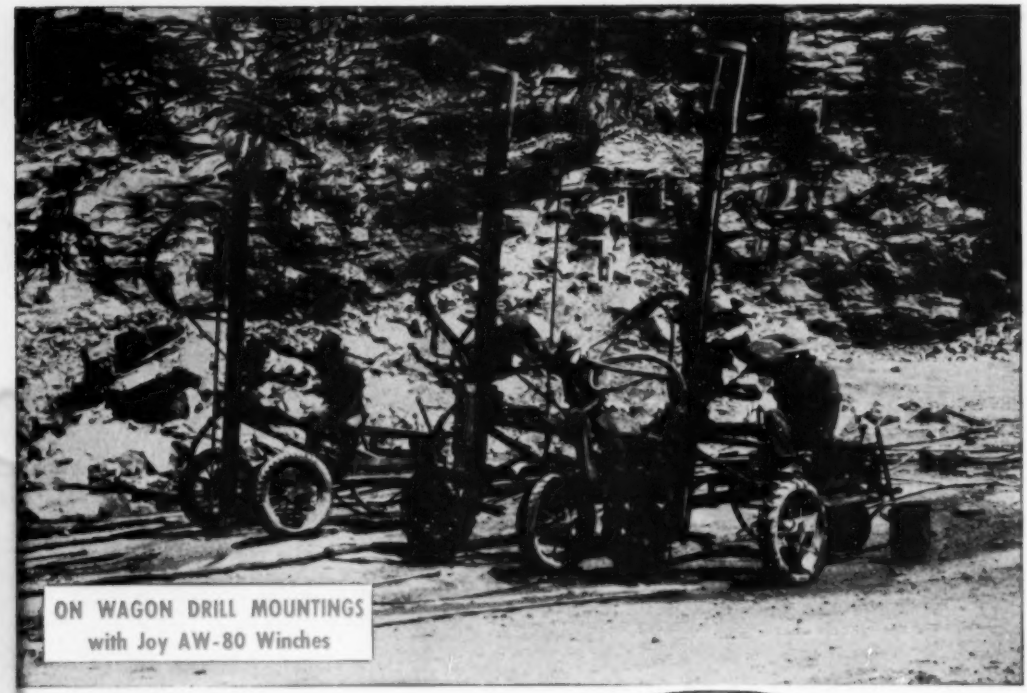
LINK-BELT COMPANY

Chicago 9, Indianapolis 6, Philadelphia 40, Atlanta, Houston 1, Minneapolis 5, San Francisco 24, Los Angeles 33, Seattle 4, Toronto 8, Johannesburg. Offices in Principal Cities.

11,650

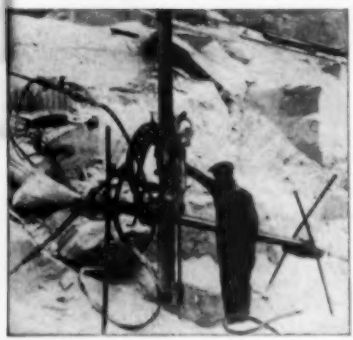
LINK-BELT Belt Conveyor Equipment

IDLERS · TRIPPERS · PULLEYS · BEARINGS · DRIVES



ON WAGON DRILL MOUNTINGS
with Joy AW-80 Winches

Put JOY SILVER STREAK DRIFTERS TO WORK ON YOUR JOB—



ON QUARRY-BAR MOUNTING

Watch daily footage INCREASE and costs per foot go DOWN!

JOY Silver Streak Drifters feature the exclusive *Dual Valve* with positive cushion control. It gives a harder, more powerful punch—literally makes air do more work. What's more, JOY Drifters *last longer*—give you more feet of hole with less maintenance. Exclusive *cadmium plating*, inside and out, inhibits rust, prevents scoring during run-in, and at the same time, adds power by permitting closer piston tolerances. ● Ask for a trial demonstration on JOY Drifters—the T-300, T-350 or T-400—*prove their all-around superiority right on the job!*

Write for Bulletin, or

Consult a Joy Engineer

W&D R 2818

JOY MANUFACTURING COMPANY

GENERAL OFFICES: HENRY W. OLIVER BUILDING · PITTSBURGH 22, PA.

IN CANADA: JOY MANUFACTURING COMPANY (CANADA) LIMITED, GALT, ONTARIO

HUNGRY HORSE DAM FED BY "U.S." BELTING

Nearly 6 million tons of sand and gravel will be carried to site of mammoth job in Northwestern Montana—on U. S. Rubber Belting

NEARLY THREE MILES of U. S. Rubber Conveyor Belting, varying in width from 24" to 42", is used in all the phases of aggregate processing at the Hungry Horse Dam. Above is shown a series of the belts carrying sized materials to the storage piles.

UNITED STATES RUBBER ENGINEERS worked with the constructors of the dam and the designers of conveyor equipment to produce this highly efficient conveyor system. ALL the belting used to "feed" Hungry Horse was furnished by U. S. Rubber.

A FEW OF GIANT crates in which belts were shipped give an idea of the tremendous footage of belting—over 15,000 feet—used at Hungry Horse, country's third largest concrete dam when completed. It is being built for the U. S. Bureau of Reclamation.

Whenever you have a problem involving materials handling, no matter how big or small, get in touch with our engineers. They will gladly cooperate with your own men in working out a solution. Write to:

A DEVELOPMENT OF

U.S. RUBBER

SERVING THROUGH SCIENCE

UNITED STATES RUBBER COMPANY

MECHANICAL GOODS DIVISION • ROCKEFELLER CENTER, NEW YORK 20, N. Y.

Vanilla or

You get the best of both with

There is a size and type of Cedarapids aggregate producing plant for every job. Send for catalogs.

Bulletin MT — Master Tandem
Bulletin Unit-2 — Unitized Plant
Bulletin JT-3 — Junior Tandem
Bulletin PS-1 — Pitmaster
Bulletin Rock-1 — Rock-It
Bulletin SPP-1 — Single Pass
Bulletin Hawk-1 — Hawkeye

Cedarapids
Built by IOWA

WHETHER you use your aggregate as just plain vanilla aggregate or chocolate covered for black top, you'll be way ahead if you produce it with Cedarapids equipment.

The Junior Tandem, illustrated, is the leader of the long line of Cedarapids portable crushing and screening plants known everywhere for big volume production, low operating costs and minimum maintenance. Smooth, balanced coordination of screens, crushers and conveyors . . . quick adaptation to a wide variety of jobs . . . fast, easy set-up and take-down—all add up to more profitable operation—50 tons an hour, 250 or more—crushed gravel, aglime or roadstone—whatever the specifications or volume—your Cedarapids distributor has the plant to fit your needs. See him today.

THE IOWA LINE *of Material Handling Equipment Includes:*

ROCK AND GRAVEL CRUSHERS • BELT CONVEYORS • STEEL BINS • BUCKET ELEVATORS • VIBRATOR AND REVOLVING SCREENS • UNITIZED ROCK AND GRAVEL PLANTS • FEEDERS • TRAPS • PORTABLE POWER CONVEYORS • PORTABLE STONE AND GRAVEL PLANTS • REDUCTION CRUSHERS • BATCH TYPE AND VOLUMETRIC TYPE ASPHALT PLANTS • HAMMERMILLS • DRAG SCRAPER TANKS • WASHING PLANTS • SOIL COMPACTION UNITS • STEEL TRUCKS AND TRAILERS • KUNZ IMPACT BREAKERS

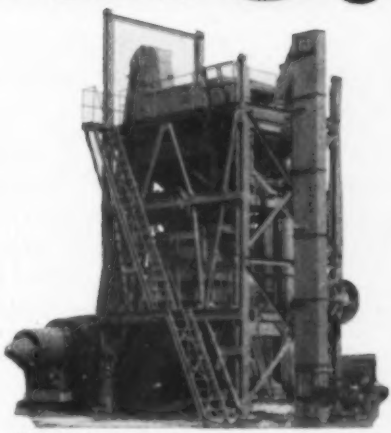
Chocolate?

Cedarapids Equipment

A CEDARAPIDS bituminous mixing plant is just the thing to chocolate mix your aggregate for low cost black top.

The mix from the Model FA, shown above, will meet the strictest specifications as well as your own demands for low cost. The FA is our most portable batch type plant but its 25 cu. ft. pugmill assures plenty of capacity for handling most of your jobs.

On all Cedarapids plants, perfectly matched screens, batchers, pugmills, elevators and driers provide a smooth, steady flow of thoroughly mixed batches. If your specifications are not too strict a Cedarapids Volumetric type plant may be the answer—either a Patchmaster or the Master Mixer. Write for bulletin today.



MODEL E—Here's the plant for your big black top jobs. Available in 2,000, 3,000, and 4,000 lb. batch sizes. They combine big volume with accurate batching, thorough mixing—low cost and easy portability. Also 1,000 lb. Model A stack-up plant. Ask for Bulletin AP-12.

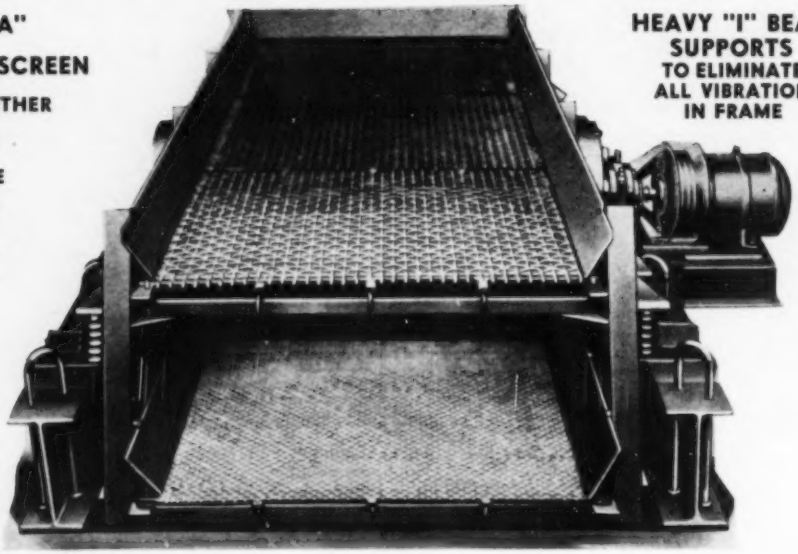
IOWA MANUFACTURING COMPANY

Cedar Rapids, Iowa, U. S. A.

IT COSTS *LESS* TO OWN THE BEST!

THE VIBRATING SCREEN WITH THE "FOUR-WAY" MOTION

TYPE "A" VIBRATING SCREEN
BUILT-IN EITHER
SINGLE
DOUBLE
TRIPLE
DECKS



HEAVY "I" BEAM SUPPORTS TO ELIMINATE ALL VIBRATION IN FRAME

ECCENTRIC FLY-WHEEL GIVES OSCILLATING MOTION
PROVIDES MAXIMUM EFFICIENCY IN SIZING MATERIALS

One of the most efficient vibrating screens ever built. Heavy construction throughout plus simplicity of adjustment. Can be tilted at any desired angle with either turn buckles or rigid supports.

Screens available in wire mesh, punched steel plate or manganese plate. Specially adapted for the handling of rocks mixed with colloidal materials. Can be used for scalping from large jaw type or gyratory crushers.

Drive belt enclosed in special covered housing for protection from dust, dirt and water. Can be operated at variable speeds to suit type of material being screened. Can be built fully covered to prevent escaping dust.

Send for bulletin describing the full line of KVS screens

KENNEDY-VAN SAUN MFG. & ENG. CORPORATION
TWO PARK AVENUE, NEW YORK 16, N. Y.

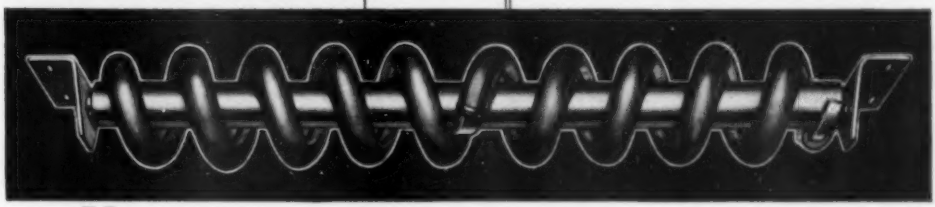
this record proves

THE RETURNS FROM REX SPIRAL RETURN IDLERS

COST RECORD (In a large western coke plant)

TYPE OF IDLER	Steel	Rubber Covered Spiral
SERVICE LIFE	3 months	12 months
COST 1st YEAR	$66.80 for 4	$47.70 each
SAVING 1st YEAR		$19.10
Cost of Replacement		
Subsequent Years (per year)	$66.80 for 4	$18.20 each (rubber covering)

SAVING per year after 1st YEAR $48.60



Yes, the cost record from *just* this one plant clearly demonstrates the savings possible through the installation of Rex Rubber Covered Spiral Return Idlers.

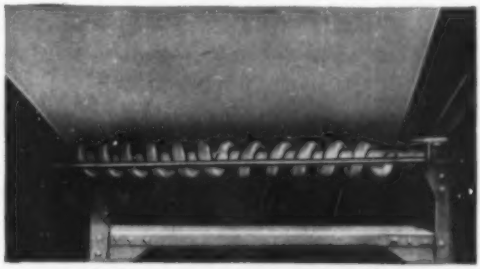
Before the installation of these cost-cutting idlers, the abrasive action of coke breeze clinging to the return side of the belts wore out the standard steel return idlers in an average 3-month period.

15 Rex Spiral Return Idlers were installed for trial and have given at least 12 months' service—4 times longer than the steel idlers. These idlers provide a constant, ever-changing point of contact between idler and belt, preventing build-up of material on the idler and, in some cases, helping to clean the belt.

Cost records show that the 15 Rex Spiral Return Idlers made possible a saving of $19.10 per idler and $286.50 total saving, including initial and installation costs. After the first year, the spiral rubber covering can be replaced, if worn, at a cost of $18.20 per idler. This cost as compared to $66.80, the cost of 4 new steel return idler rolls, indicates a saving after the initial year of $48.60 per year.

Add to these savings, the elimination of down-time caused by the frequent replacement of steel idler rolls, which makes the cost-cutting advantages of Rex Rubber Covered Spiral Return Idlers even more obvious.

Why not investigate the advantages of Rex Spiral Return Idlers and the other idlers in the Rex Line for your operations? Mail the coupon for your copy of Bulletin No. 463R.



Rex Rubber Covered Spiral Return Idlers installed in this western coke plant delivered 4 times longer service than conventional steel return idlers previously used.

CHAIN BELT REX COMPANY — BELT CONVEYOR IDLERS

Chain Belt Company
1604 W. Bruce Street
Milwaukee 4, Wis.

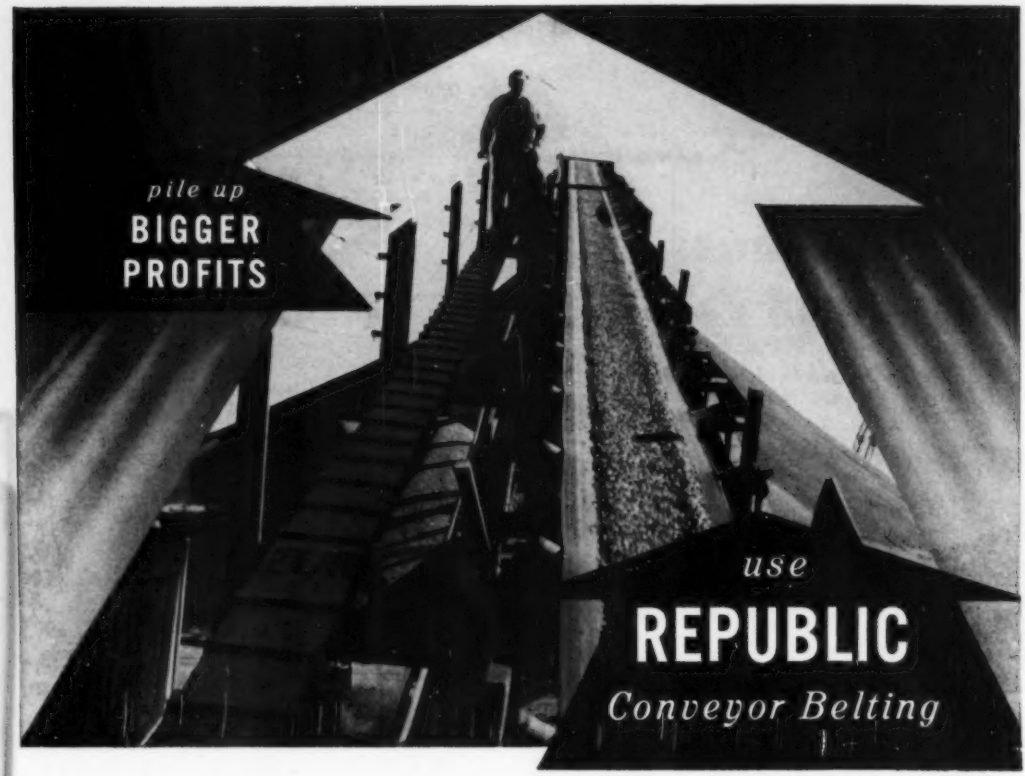
Please send me a copy of Bulletin 463R.

Name.....

Company.....*Dept*.....

Address.....

City.....*State*.....



● One of many Republic Conveyor Belts now helping users pile up bigger profits is the 24-inch Record Maker pictured above.

For nearly three years, this Republic Belt has been in constant use at the Coon Valley Sand & Gravel Company in Des Moines, Iowa.

It's a standard type belt fitted to the job by an experienced Republic Distributor, the Globe Machinery & Supply Company, and, although continually exposed to extreme and varying weather conditions, it has handled hundreds of tons of abrasive aggregates. Today, the same belt is hard at work . . . still going strong.

If, like thousands of conveyor belt users, you want custom-built features which give you results like this, without incurring special fabricating charges, check with Republic. Your local Republic Distributor carries in stock hundreds of job-designed industrial rubber goods items, like Record Maker Belting. He can give you immediate and expert service in every field of application.

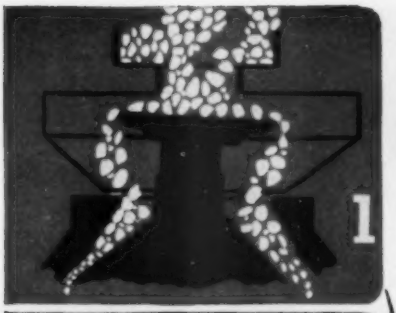
Remember, Republic has been *the* specialist in development and manufacture of industrial rubber goods for more than 48 years!

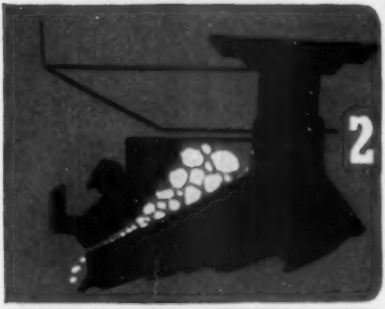
Mr. C. W. Helstrom, Vice-President, Manager
Globe Machinery & Supply Company
Des Moines, Iowa

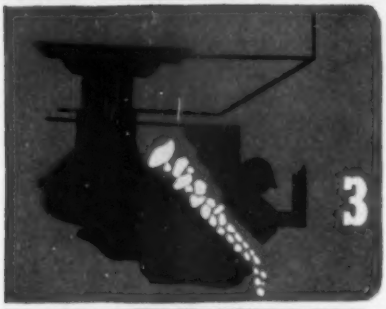
Pioneers in the use of **COLD RUBBER**

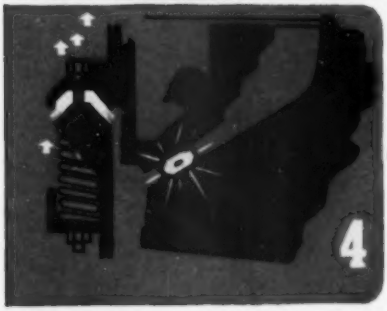
REPUBLIC RUBBER DIVISION
LEE RUBBER & TIRE CORPORATION, YOUNGSTOWN, OHIO
Lee Deluxe Tires & Tubes - - - Conshohocken, Pa.

MECHANICAL RUBBER GOODS BY
REPUBLIC RUBBER DIVISION

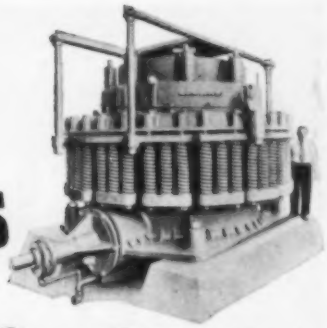








4 BIG REASONS why *Symons Cone Crushers* lead in the fine crushing field



1 uniform controlled feed

Feed platform with adjustable spout in conjunction with the oscillating feed plate combine to control and uniformly distribute the feed to the crushing cavity.

2 maximum liner utilization

With the Symons process of crushing, the crushing action occurs throughout the entire length of the cavity. Uniform manganese wear means minimum scrap loss and low manganese cost per ton of crushed product.

3 large discharge area

Wide throw of head creates a large opening for free and rapid discharge of crushed fines. This allows rapid entry of new feed into the cavity, an essential factor for big capacity.

4 protection from tramp iron

The circle of heavy springs permits the bowl and adjustment ring to rise to allow a non-crushable object to pass through without damaging the crusher. After the tramp iron is discharged the crusher automatically returns to its original setting.

These are but a few of the exclusive Symons Cone features that make possible the enormous output of fine product which has won for this crusher the position of world leadership in the fine crushing field.

NORDBERG MFG. CO.
MILWAUKEE 7, WISCONSIN
NEW YORK • SAN FRANCISCO • WASHINGTON • SPOKANE
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NORDBERG

Machinery for processing ores and industrial minerals

Jaw Crusher

Rotary Kiln

Vibrating Bar Grizzly

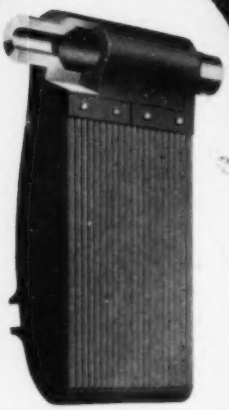
Symons Rod Deck Screen

Mine Hoist

Diesel Engines

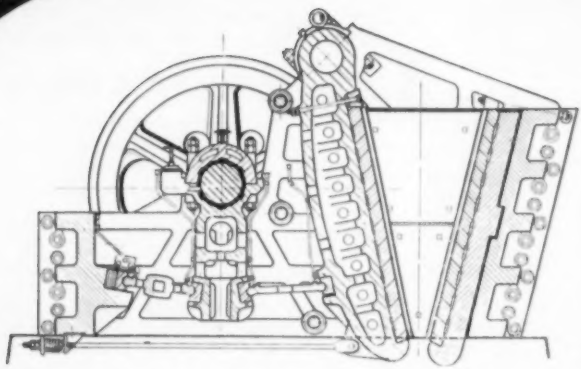
IT COSTS LESS TO OWN THE BEST

KENNEDY SWING JAW CRUSHERS



Reversible Swing Jaws hold wear to an absolute minimum. Hard — Tough — Strong

POWER-PACKED, RUGGED BUILT TO CRUSH AND TO LAST!



Scale drawing of Kennedy Swing Jaw Crusher.

Built with crusher openings from 7 inches to 66 inches . . . 6,000 to 600,000 lbs.

Frames of Herculite steel with tensile strength up to 60,000 lbs. per square inch.

BUILT TO YOUR SPECIFICATIONS IN ANY SIZE REQUIRED

Send for bulletin describing KVS crushers

KENNEDY-VAN SAUN MFG. & ENG. CORP'N

TWO PARK AVENUE, NEW YORK 16, N. Y.

BULLETINS FOR YOU!

We think that many chief engineers, chemists, operating engineers, and superintendents in the chemical-process industries should be interested in equipment illustrated and described in these bulletins. We shall be glad to send any of them to you.

CONVEYING:
Bulletin FK-25, Fuller-Kinyon Systems for dry pulverized materials. Bulletin FH-1, F-H Airslide, for fine, dry materials. Bulletin A-15, Airveyor, for dry crushed and granular materials.

COOLING:
Bulletin CO-4, Fuller Inclined-Grate Cooler, for high-temperature granular and lumpy materials. Bulletin PMC-1, Dry Pulverized-Material Cooler.

COMPRESSED AIR:
Bulletin C-5, Fuller Rotary Compressors and Vacuum Pumps, for air and gases, pressures to 125-lb. gage.

FEEDING:
Bulletin F-3, Roll and Vane Type Feeders; Rotary Valves, for dry pulverized and granular materials.

LEVEL CONTROL:
Bulletin I-3, Material-Level Indicator, for dry pulverized and granular materials in bins and silos.

AERATION:
Bulletin AU-2, Aeration Units, for agitating, blending, and activating fine materials stored in bins and silos.

SAFETY SWITCH:
Bulletin MS-1, Fuller Motion Safety Switch, for protecting machines, equipment, and processes against damage resulting from stoppage or reduced speed.

VALVES:
Bulletin SV-1, Fuller Slurry Valves, for stopping or diverting of slurry conveyed through pipe lines.

FULLER COMPANY, CATASAUQUA, PA.
CHICAGO 3 — 120 S. LaSALLE ST.
SAN FRANCISCO 4 — 420 CHANCERY BLDG.

G-62

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FULLER COMPANY, CATASAUQUA, PA.

Please send bulletins as checked:

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C-5 ☐ F-3 ☐ I-3 ☐ AU-2 ☐ MS-1 ☐ SV-1 ☐

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COMPANY.....

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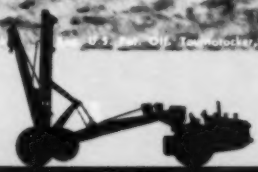
35 m.p.h. "C" HAULS

. . . converts to STRIP

Other interchangeable tools for C TOURNAPULL

16-ton bottom-dump
TOURNAHOPPER

20-ton flat-bed
TOURNAHAULER



15-ton
TOURNACRANE

6 or 7-yd.
TOURNAMIXER

SHOVEL ROCK

with 16-ton rear-dump TOURNAROCKER

- 17 heaped yard capacity
- 8' x 12'5" bowl for big target
- 13'9" turning radius with 15'11" wheelbase
- 4-wheel air brakes with 4176 sq. in. brake surface
- Big 21.00 x 25 low-pressure tires
- Simple electric body hoist
- Weighs approx. 36,800 lbs. complete

Here's just *one* profitable use for versatile, 35 m.p.h. C Tournapull prime mover in mines and quarries. Coupled to 16-ton, rear-dump Tournarocker, it's a big-production hauler. Operator takes it through its cycle at top speed, with complete safety, because Tournarocker has 4,176 sq. in. of braking surface — *more on one wheel than most haulers have on all four.* Holding action of powerful 4-wheel, disc-type air brakes, plus *front-wheel drive*, let Tournarocker back up to edge of bank, dump load clear. Eliminates rehandling, saves dozer clean-up. Simple electric hoist (no troublesome hydraulics) tips body to vertical position. Smooth, clean, streamlined bowl clears loads instantly. In addition to big-payload, and fast-cycle hauling with Tournarocker . . . money-saving interchangeability with Carryall *doubles* Tournapull's earning capacity for mine and quarry owners. For example . . .

SCRAPER DIRT

with 13.5 cu. yd. CARRYALL SCRAPER

- 16-ton load capacity
- Finger-tip electric control on apron, bowl, load-ejector tailgate
- Open-top bowl for shovel loading
- 4-wheel disc-type air brakes
- 21.00 x 25 tires interchangeable with prime mover or Tournarocker
- Total weight approx. 34,500 lbs.

For less than 25% of the cost of the original unit, the Tournarocker interchanges with a scraper . . . is ready to strip overburden, move spoil banks, build and surface haul roads. All you need is Carryall body — same Tournarocker wheels and tires can be switched to Scraper, substantially reducing cost of unit interchangeability. The giant 21.00 x 25 tires assure ample flotation in mud. Constant-pull, power-proportioning differential also reduces weather delays . . . gives positive traction on soft banks and slick pit grades.

Thus, Carryall and Tournarocker keep your "C" prime mover working and earning all year 'round. Other auxiliary hauled units, shown below, further save time and reduce equipment investment per job. 3 diesel engines, 165, 180, and 186 h.p. are available in the "C" prime mover to best fit your requirements. Your LeTourneau Distributor can also show you this money-saving Tournapull package in both *larger* and *smaller* sizes. Call him TODAY!

LETOURNEAU PEORIA, ILLINOIS — JOB-PROVED Over $500 Bulk and Shipped — **TOURNAPULLS**

MORE YARDS PER HOUR WITH RUBBER-TIRED POWER

The Work Horse in the packaging field

BEMIS

MULTIWALL

PAPER

SHIPPING

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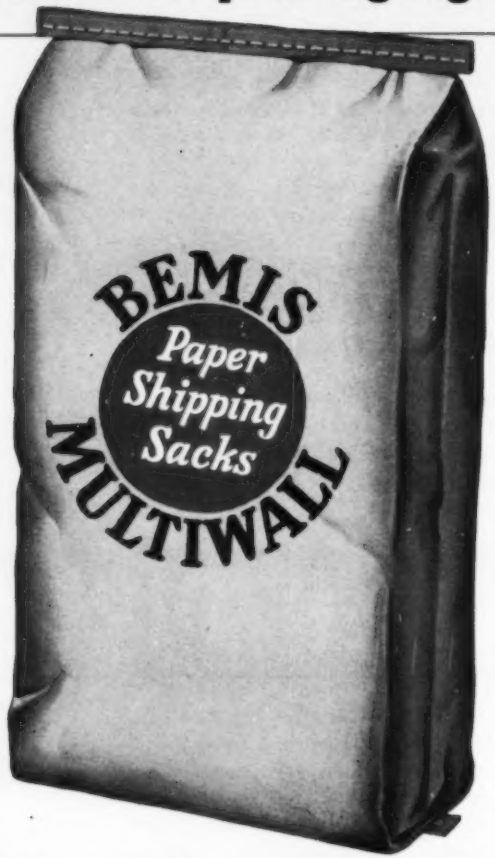


They're tough and sturdy . . . have plenty of reserve strength even when packed with such heavyweights as cement or fertilizer.

Bemis uses top quality kraft paper. Each of the three or more plies has been tested for the kind of work it must do. So, there is never any question. It's sure to do the job.

Seven Bemis Multiwall Plants are ready to team up to give you service in an emergency or to provide a dependable source of supply.

Bemis

Automatic Dust-Free System for HYDRATED LIME Production

UNIFORMITY

PURITY

ECONOMY

THE Raymond Automatic Pulverizer is the universally recognized machine throughout the United States and many parts of the world for disintegrating, classifying and rejecting impurities from hydrated lime. These operations are performed simultaneously on this one unit.

The Whizzer-equipped Pulverizer provides many definite operating advantages. Capacities have been increased in some cases with the whizzer to twice the output available with the Double Cone Separator on the finer grades.

All grades of hydrated lime from mason's hydrate with finenesses of about 95% passing 100-mesh to chemical and spray limes at 99.9% or better passing 325-mesh can be produced on this unit. Production of a uniformly high quality hydrate is assured, and changing the grade consists merely of one simple adjustment, made externally while the unit is running.

Raymond Automatic Pulverizers are manufactured in several sizes for almost any capacity requirement. One of these up-to-date pulverizing units will be a money-saving addition to your plant.

Write for Catalog No. 60 and tell us the requirements of your problem

RAYMOND AUTOMATIC PULVERIZER

showing double whizzer separator, and throw-out attachment in door.

COMBUSTION ENGINEERING - SUPERHEATER, INC.

SINCE 1887

RAYMOND PULVERIZER DIVISION

1321 North Branch St., Chicago 22, Illinois

The Dorr Type H Slurry Mixer

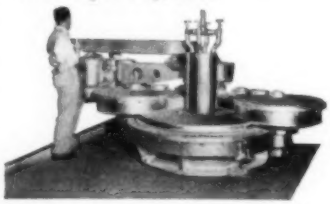
Best answer to the problem of large volume kiln feed storage required in today's wet-process cement production is the Dorr Type H Slurry Mixer. Why better than comparable units?

First, because it is powered by the rugged Type H drive-head . . . a power-package unmatched in any similar equipment. Second, because the Type H utilizes a center shaft mechanism with the drive-head supported by a truss spanning the tank. This requires no centerpier and foundation . . . saves concrete and reinforcing steel . . . greatly simplifies the construction of deep tanks as required for cement slurry mixing. In short—saves dollars for you!

Add to these features the thoroughly proven mixing control effected through the rake and air lift principle of the Dorr Slurry Mixer. The result is the best possible slurry storage unit in the 45′ to 70′ dia. range—at a reasonable installed cost.

A Dorr engineer will gladly supply more detailed information on this or other components of the Dorr C.C.G. System.

▲ *TOP—Dorr Type H Slurry Mixers installed at South Dakota Cement Company's mill located near Rapid City, S. D.*



▲ *ABOVE—Close-up of Type H drive-head of 55′ dia. Dorr Slurry Mixer installed at the Portland, Colorado mill of the Ideal Cement Company.*

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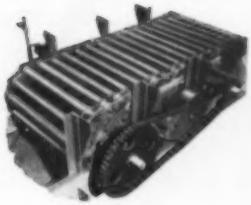
Dorr Technical Services and Equipment Are Also Available Through Associated Companies and Representatives in the Principal Cities of the World. Names and Addresses on Request.

DORR

RESEARCH ENGINEERING EQUIPMENT

ORO MANGANESE STEEL APRON FEEDERS. All wearing parts are Oro-Supermang Steel. Apron consists of Oro-Supermang double beaded, overlapping and interlocking pans with vertical side flanges. Pans cast integral with driving links.



TRAVELING GRIZZLY FEEDER. A heavy duty feeder, by-passes dirt or fines. Consists of a continuous track of 4" diameter tubular steel bars spaced 2½" apart. Driving mechanism with speed reduction. Clutch permits one man control.

Pays for itself every 6 months!

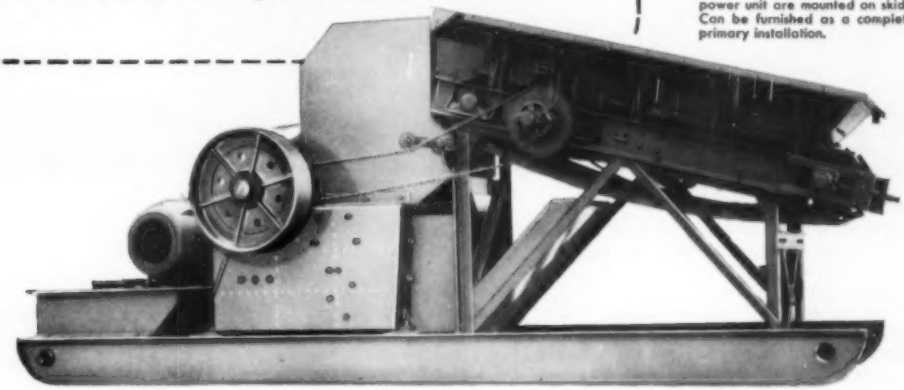
If you've ever pried a wedged rock or tried to clean out a choked crusher, you know how important a good feeder can be. "Most valuable piece of equipment in my plant . . . saves its cost twice a year . . . insures steady production". . . that's the opinion of many experienced operators.

And they're right too. Without regulated feed, crushers are overloaded one minute . . . empty the next. Result—frequent clogging, idle trucks, lower production while a man with a manganese back cleans out the hopper or crusher.

You'll agree, we're sure, that a feeder can be *the most important single unit in many plants.* To fill your most exacting requirements, Pioneer builds three types of feeders for heavy work—Apron, Pioneer-Oro, and Traveling Grizzly—in many sizes. Just check the coupon below for complete details. PIONEER ENGINEERING WORKS, 1515 Central Avenue, Minneapolis 13, Minnesota.

APRON FEEDERS. ½" forged steel pans rigidly supported on wide rollers. Overlapping forged steel pans and sideboards provide a continuous path for material . . . reduce spillage.

Illustrated below is a 170 Series Plant. An apron feeder with flared sideboards, jaw crusher, and power unit are mounted on skids. Can be furnished as a complete primary installation.



BUY BOTH!

Higher Output, Lower Upkeep!

Pioneer

Continuflo EQUIPMENT

Mail coupon today! Please send me more information on the following:

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- ☐ ORO FEEDERS (HEAVY DUTY)
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- ☐ MECHANICAL FEEDERS
- ☐ CONTINUFLO CONVEYORS
- ☐ BUZZER SCREENS (LIGHT DUTY)
- ☐ VIBRATING SCREENS
- ☐ REVOLVING SCREENS
- ☐ ROLL CRUSHERS
- ☐ JAW CRUSHERS
- ☐ GRAVEL PLANTS
- ☐ ROCK PLANTS
- ☐ WASHING PLANTS
- ☐ BITUMINOUS PLANTS
- ☐ ROCK TOWERS

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Say 'Goodbye' to Nose Brick Troubles with

Sketch shows arrangement of movable firing hood with air-cooled kiln end.

NO SHUTDOWNS for end brick replacement with this Allis-Chalmers air-cooled kiln end. The segmental alloy steel retaining ring, shown above, forms a channel through which a blast of cooling air is forced.

Result: No kiln warpage; refractory brick lasts as long at discharge end as at any point along the kiln.

This one feature alone will, during the working life of the kiln, pay for itself several times over in reduced downtime and increased production... in lower refractory costs and longer life of the kiln itself.

Air-cooled kiln end design makes possible the use of a *more positive* air seal, resulting in fuel savings.

Besides the air-cooled discharge end, Allis-Chalmers rotary kilns are designed and built with a number of other important features:

- Extra thick shell plate at discharge end and under the riding rings.
- Centralized instrument control of the entire operation located on single control panel.
- Modern heat recuperation equipment.
- Constant delivery feeders and all auxiliary rotary kiln equipment.

Allis-Chalmers has built hundreds of rotary kilns . . . offers over 50 years' experience in kiln engineering. The A-C representative in your area will put you in touch with these facilities. Call him, or write for **Bulletin 07B6368.** A-2997

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Texrope is an Allis-Chalmers trademark.

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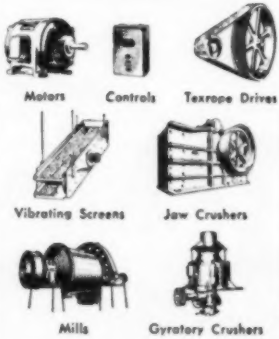


DIVIDE BY TWO—
and GET MORE than you had before

FUEL consumption was cut in half and production doubled when a 4-cylinder GM Series 71 Diesel replaced gasoline power in this Northwest one-yard shovel.

The machine handles 1200 tons of limestone and uses only 35 gallons of fuel oil in an 8-hour day, as compared to 600 tons using 75 gallons of gasoline with the old engine. R. W. Meyer, president of Riverview Stone & Material Co., St. Louis, reports moving 400,000 tons of rock without engine overhaul.

"Not only did the General Motors Diesel engine drastically reduce fuel costs," says Mr. Meyer "but operating speed stepped up considerably. This 15-year-old machine walks right through in tight rock now."

Taking jobs like this in stride is everyday work for GM Diesel-powered equipment. The 2-cycle GM Diesel gives lightning response to power demands, operates on low-cost fuel, and delivers long, economical service.

You'll find it pays to specify GM Diesels for repowering old equipment or when buying new. Write us or ask your distributor for details.

DETROIT DIESEL ENGINE DIVISION

SINGLE ENGINES . . . Up to 275 H. P. **DETROIT 28, MICHIGAN** MULTIPLE UNITS . . . Up to 800 H. P.

GENERAL MOTORS

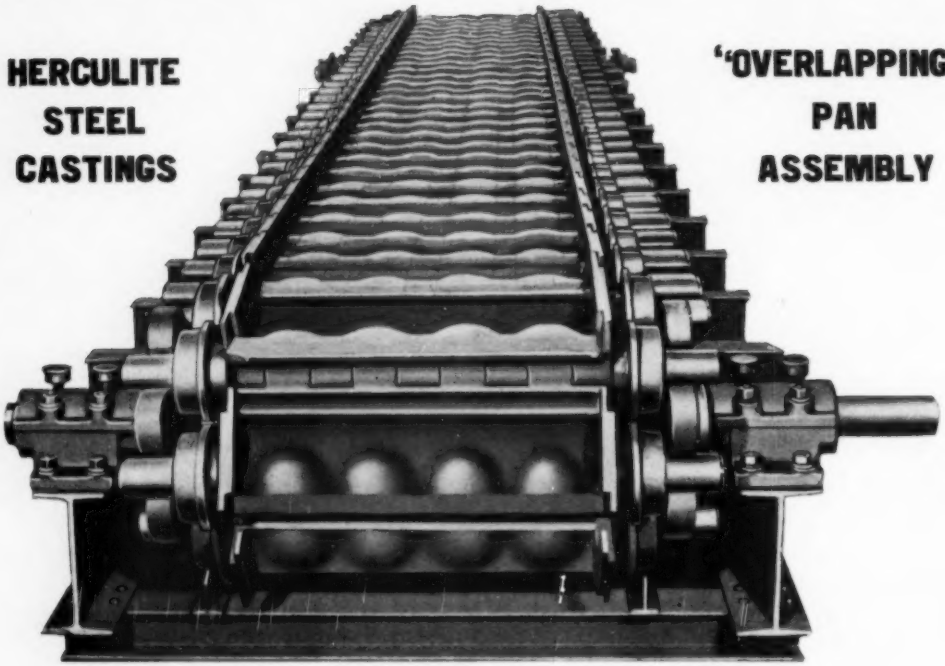
GM GENERAL MOTORS DIESEL POWER

DIESEL BRAWN WITHOUT THE BULK

IT COSTS LESS TO OWN THE BEST

HERCULITE STEEL CASTINGS

"OVERLAPPING" PAN ASSEMBLY



KENNEDY HEAVY DUTY POWER SHOVEL ROCK FEEDER

Variable speed, operator-controlled, non-clogging Rock Feeder. Designed to receive rock and ore, direct from power shovel or dump cars. Conveyor speed can be regulated to synchronize with crusher capacity and screen load. Overlapping pans provide maximum carrying and dumping capacity.

Endless belt construction assures complete emptying action without clogging in continuous, fast cycle. Feeders built in varying widths and lengths to meet any specifications. Strong, rugged and dependable. Correct auxiliary equipment that improves performance of any crusher. A typical KVS top quality product.

Send for Bulletin describing KVS conveying system

KENNEDY-VAN SAUN MFG. & ENG. CORPORATION

TWO PARK AVENUE, NEW YORK

Wanta get hauling costs down to rock bottom?

DODGE trucks are "Job-Rated" to cut costs!

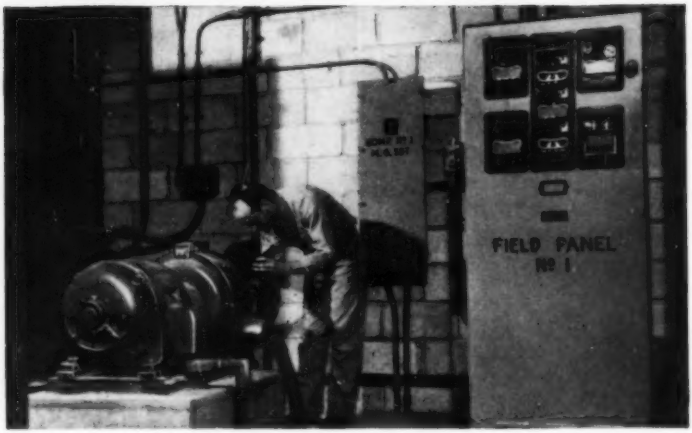
If your hauling costs are running too high, you need trucks that are built to fit your job. You need Dodge "*Job-Rated*" trucks.

Because they are "*Job-Rated*," Dodge trucks can really take it. From stem to stern, every chassis unit is engineered and sized to fit your hauling needs. This means thousands of extra miles of thrifty operation in rough, tough quarry work.

What's more, every Dodge truck is powered with a "*Job-Rated*" engine that gives you power to spare—plus maximum gas and oil economy.

Ask your Dodge dealer to show you a truck that will get your hauling costs down to "rock bottom." He'll show you a Dodge truck that's "*Job-Rated*" to fit your job and save you money.

With all their extra value **DODGE** "Job-Rated" **TRUCKS** are priced with the lowest



Field excitation from the synchronous motor is provided by the G-E motor-generator set at left, comprising a 30-hp Tri-Clad (R) motor and a 20-kw 125-volt generator. The compact, metal enclosed cubicle at right contains control equipment that provides the desired field current for the proper excitation of the G-E synchronous motor.

You can put your confidence in—

GENERAL ELECTRIC

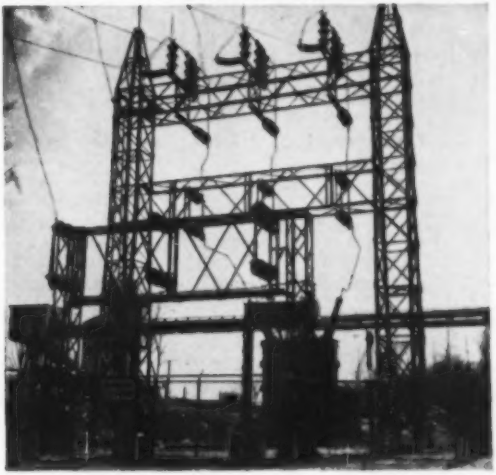
658-1

G-E SYSTEM POWERS NEW GRINDING PROCESS FOR TOP OUTPUT!

Co-ordinated G-E equipment helps maintain 200-ton-per-day output of super-fine talc

Down to 1/30,000th of an inch! That's how fine the talc is pulverized at the Gouverneur Talc Co. plant in upper New York State, a subsidiary of the R. T. Vanderbilt Company of New York City. Here is a new process using hot compressed air to literally blast particles against each other at terrific velocity. Here, too, is another electrical system furnished and co-ordinated by General Electric to provide top power-supply reliability.

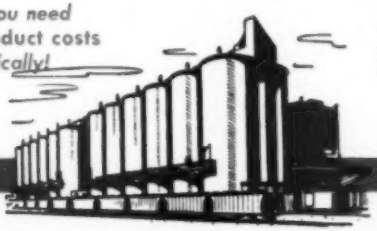
In planning a new or modernized plant, discuss *your* electrical needs early with a G-E engineer. His advice can help speed production, cut costs. *Apparatus Dept., General Electric Company, Schenectady 5, N. Y.*



Gouverneur's G-E outdoor unit substation, rated 3750 kva, 83 kv, steps down incoming high-voltage power to 4160 volts for plant distribution. Further reducing voltage to 480 volts at load areas are 3 G-E 500-kva load-center unit substations.

G-E metal-clad switchgear, as in this assembly at Gouverneur, includes incoming-line and feeder breakers selected to assure adequate interrupting capacity. Units, shipped assembled for easy installation, are metal-enclosed to protect personnel.

Everything you need
to cut rock product costs
. . . electrically!



Vol. 42 JUNE 1950 No. 12

PIT AND QUARRY

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editorial

Safety Must Be Emphasized!

ADVANCE reports of the National Safety Council on industrial accidents show that American workers in general were much safer in 1949. Industrial injuries for the year showed a substantial reduction in both frequency and severity as compared with 1948, 1947, and 1946. The 1949 accident frequency rate for all industries, based on the number of disabling injuries per 1,000,000 man-hours, was 10.14—a drop of 12 percent from the year before. The 1949 accident severity rate for all industries, based on the number of days lost per 1,000 man-hours, was 1.02—a reduction of 9 percent from 1948.

In the nonmetallic minerals industries the 1949 safety picture was again a mixed one, but with some overall improvement. The cement industry once more made by far the best safety showing in this field, with an accident frequency rate of 5.18 and a severity rate of 2.21. These were reductions of 24 and 19 percent, respectively, from the 1948 figures. In spite of this excellent record, however, the improvement in industry in general was so great that cement dropped from fifth place in frequency in 1948 to sixth place in 1949. In severity it is now in 34th place among the 40 industries listed. The frequency rate in the cement industry has dropped steadily since 1946, when the rate was 7.88. The severity rate has been on a downward trend since 1947, when a high of 2.82 was reached; but it is still above the 2.12 figure of 1946.

The quarry industry had a bad year in 1949. Its accident frequency rate dropped to 17.43 from 19.07, a decrease of 9 percent; but it is still far above the low figure of 14.70 in 1946. It remained in 32nd place among all industries. In accident severity, however, the quarry industry had a dismal record, in spite of which it remained in 37th place. Its 1949 rate was 4.02, which was 19 percent higher than the 1948 figure of 3.38 and far above the 1946 figure of 2.51.

Mining, other than coal, showed excellent improvement, but remained near the bottom of the list in both categories, in 38th place to be specific. Its frequency rate in 1949 was 33.63, which was 17 percent under 1948 and far under the very high figure of 50.53 in 1947. The mining severity rate in 1949 was 4.63, which was 27 percent under the 1948 figure.

WHILE the safety record for the nonmetallic minerals industries was somewhat improved in 1949, it is still far from where it should and could be. The cement industry again set the pace with its low frequency rate, showing what can be done with an industry-wide safety program in which each plant and the top men in each industry actively participate. The quarrying and mining industries could, by similar means, bring their frequency rates down to lower levels. In accident severity there was comparatively little difference between the cement, quarrying and mining industries—they ranked 34th, 37th and 38th, respectively.

It is obvious that safety efforts in the quarry and mining industries still are not what they should be. Too many of these industries still do not have safety contests and make no organized safety efforts. Even in those industries having association-sponsored safety contests too many member companies do not enter, a sure sign of lack of interest in safety on the part of management. We can only warn such producers that, if they do not take steps, both as individual firms and as industries, to improve safety in their operations, such steps will be taken by the labor unions or by the government. This would mean a further loss of control of their businesses to these bodies, another step toward socialism and government control of business.

Progress of Percentage Depletion

JUST when nearly everyone was convinced that no action would be taken on percentage depletion during this session of Congress, the House Ways and Means Committee on May 18 and 19 took the following surprise actions:

1. Extended a 15 percent allowance to fuller's earth, refractory clay, fire clay, quartzite, perlite, diatomaceous earth, and limestone when calcined or when used by metallurgical or chemical industries.
2. Extended a 5 percent allowance to sand, gravel, granite and marble.
3. Increased the allowance on coal from 5 percent to 10 percent.

In addition, the Committee rejected President Truman's proposal to reduce the present percentage depletion allowances on oil, gas, sulphur and other nonmetallic minerals already having such allowances.

WHILE this step toward equalization of percentage depletion to natural resource industries should meet with general approval, it creates still other inequalities. A large percentage of crushed stone producers can justly complain of discrimination. Crushed stone and sand and gravel are highly competitive commodities, and within the crushed stone industry the different varieties of stone are likewise highly competitive. As the matter now stands, chemical and metallurgical limestone (forming about 25 percent of total output of crushed stone in 1948) would get a 15 percent allowance. Crushed granite and marble (forming about 6 percent of the total) would get a 5 percent allowance. The other 69 percent (chiefly crushed limestone) would get nothing.

Apparently it is not yet too late to correct this inequality but, as the Ways and Means Committee will soon finish its consideration of changes in the tax law, prompt action is imperative. Producers of crushed stone and of any other nonmetallic minerals not included under percentage depletion can still contact their Congressmen and request that they urge the Committee to remove this discrimination. Failing this, it is still possible that the Senate Finance Committe will add to the list when the House-approved bill comes before it.

Walter E. Trunkey

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news of the industry

PIT AND QUARRY

Chairman of N.S.G.A. Manufacturers' Division Names Committee Men

Morgan R. Butler, chairman of the Manufacturers' Division of the National Sand and Gravel Association, has released a list of committee members appointed for the coming year. They are as follows:

New Orleans Convention Committee: A. G. Conover, chairman, Hewitt-Robins, Inc.; Wayne King, W. S. Tyler Company; Morgan Butler, Butler Bin Company.

Committee on Nominations: Wayne King, chairman; R. P. McKenrick, Blaw-Knox Division; R. D. Ketner, General Electric Company, Materials Industries Division; W. A. Rundquist, Pioneer Engineering Works; E. D. Stearns, Barber-Greene Company.

Committee on Resolutions: R. C. Johnson, chairman, Simplicity Engineering Company; D. D. Guilfoil, Sauerman Brothers, Inc.; L. C. Mosley, Marion Power Shovel Company; D. M. Blackburn, Hendrick Manufacturing Company; J. C. McLanahan, McLanahan & Stone Company.

Exhibit Committee: E. J. Goes, chairman, Koehring Company; E. M. Heuston, Bucyrus-Erie Company; B. F. Devine, Chain Belt Company; C. O. Friend, Nordberg Manufacturing Company; A. Goldberg, Allis- Chalmers Manufacturing Company; Gerald Smith, Smith Engineering Works.

National Gypsum, Union Sign Pension-Insurance Terms

Culminating months of negotiations, the National Gypsum Co., and the AFL United Cement, Lime & Gypsum Workers International Union reached agreement in Buffalo May 2 on terms of a pension and insurance contract.

Melvin H. Baker, president of the Buffalo concern, said the agreement centers around contracts for three of nine National Gypsum plants represented by the union. They are located in Portsmouth, N. H.; York, Pa., and Bellefonte, Pa. Negotiations, Mr. Baker said, will continue with other plants in the hope that the agreement will serve as a pattern for discussion.

The agreement provides for retirement at the age of 65 of employees with 25 years or more of service with a minimum pension of $100 a month. It also includes provisions for an insurance "package" made up of life insurance benefits, accidental death and disability and other benefits. Entire cost of the pension program will be assumed by the company, Mr. Baker said. Cost of the insurance package will be divided with the employees.

Penn-Dixie to Spend Millions On New Wet Process Kiln

Pennsylvania-Dixie Cement Corporation plans to build a 500-ft. wet-process kiln to replace the mill's present six dry kilns at Kingsport, Tenn. Estimated cost is placed between $2,100,000 and $3,100,000. Work is scheduled for completion early next year.

The new process is a company move to comply with the city's air pollution control ordinance, according to the local press.

Coming Events

June 26-30, 1950—Atlantic City. 53rd annual meeting and ninth exhibit of testing apparatus and equipment, American Society for Testing Materials, Chalfonte-Haddon Hall.

July 19-20, 1950 — Cincinnati. Midsummer meeting, National Agricultural Limestone Association, Netherland Plaza Hotel.

August 2-3, 1950—Buffalo, N. Y. Midyear meeting of board of directors, National Slag Association, Hotel Statler.

October 16-20, 1950 — Chicago. 38th National Safety Congress and exposition, Stevens Hotel.

Buffalo Slag Company Begins Equipment Tests At $1,000,000 Plant

The new $1,000,000 processing plant of the Buffalo Slag Company, Inc., at Buffalo, N. Y., said to be one of the most modern in the East, has begun operations to test conveyor systems and screening methods before swinging into full production.

Located on the property of the Bethlehem Steel Company, the plant is designed for smoother, faster operation than heretofore attempted. A company spokesman stated that approximately 450 tons of processed material will be turned out hourly when the plant reaches peak operation.

Material will be obtained directly from the Bethlehem blast furnaces.

$1,000,000 Expansion Plan Slated for Ideal's Ada Plant

To step up production in the Southwest, Ideal Cement Company officials have decided to spend $1,000,000 on the firm's Ada, Okla., plant. A new kiln will be added to raise the plant's capacity by 2,000 bbls. per day—for a total of 600,000 bbls. per year.

Cris Dobbins, executive vice-president and general manager, announced that the Stearns-Roger Manufacturing Company of Denver, which has constructed and remodeled Ideal plants from Montana to the Gulf of Mexico for many years, will install the new equipment. The Traylor Manufacturing Company of Allentown, Pa., will provide the kiln and a new mill powered by an 800-hp. motor.

Production at the modernized and expanded plant is scheduled to begin about October 1.

U.S. Gypsum to Have New Los Angeles Sales Office

Completion of a new $125,000 office structure to be occupied on a 10-year lease by the United States Gypsum Company in Los Angeles was announced there recently.

According to Ralph Peters, sales manager of the firm's Pacific Division, the building will serve as the Western sales office of the company.

Road Building Setting All-Time High in 1950, A.R.B.A. Survey Indicates

All highway construction dollar volume records are being shattered this year, with $1,446,732,000 in road improvements—exclusive of maintenance—going into place on the systems of the 48 states and the District of Columbia.

A state-by-state survey made by the American Road Builders' Association shows a 15-percent increase this year over 1949's previous record road construction total of $1,262,506,000. In making the figures public, Lt. Gen. Eugene Reybold, A.R.B.A. executive vice-president, pointed out that maintenance costs—up an estimated $12,761,000 to $452,782,000 from the 1949 expenditure of $440,021,000—will boost the total state highway program for 1950 to $1,899,514,000, as against the previous record high of $1,702,527,000 set in 1949.

Columbia Gypsum Co. Plant Schedules Early Production

Construction at the Columbia Gypsum Company's plant at Greenacres, Wash., is progressing so rapidly that production of agricultural gypsum is expected to begin in the very near future. This product could have been turned out much earlier, had it not been for the large amount of snow which went into the track hopper with the raw rock from the firm's deposits at Windermere, B. C., last winter. This made it necessary to dry the material. Production of plaster is scheduled for the middle of the summer.

Present construction includes the erection of an air-conveying system and three plaster tanks. A kettle will be added for the preparation of plaster. The Raymond roller mill is already in place, as well as a bagging tank.

3M Net Sales, Income Hit All-Time High in 1949, 1950

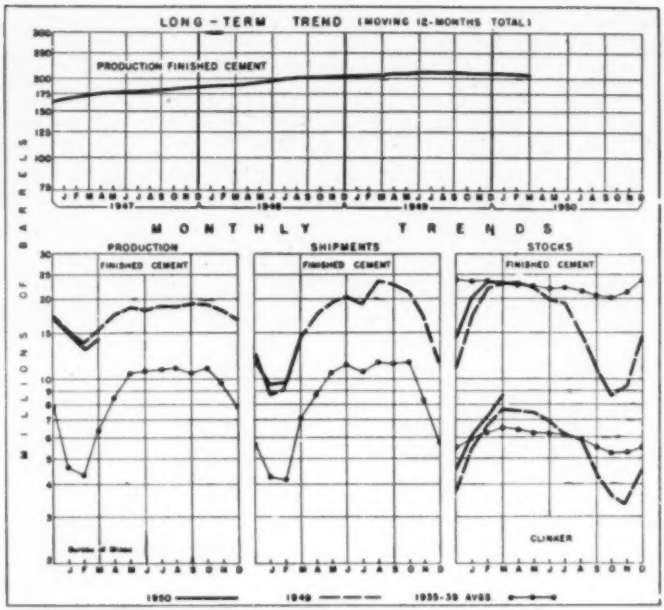
Net sales of the Minnesota Mining & Manufacturing Company for 1949 reached an all-time high, according to the firm's annual report. The figure was $114,925,274, an increase of more than $6,000,000 over the previous record of $108,246,410 set in 1948. Net income after taxes amounted to $15,398,176, up about $2,000,000 over last year's profit of $13,234,756.

Earnings per share of common stock were listed at $7.60, as compared with $6.51 in 1948. The company paid dividends on common stock of $2.60 per share for the year, an increase of 50 cents over the previous year.

Wages and salaries for 1949 amounted to $31,838,335, an increase of nearly $500,000 over the total of 1948.

3M officials reported net sales for the first quarter of 1950 of $32,241,032 and a net income of $4,693,065. Figures for the first quarter of a year ago were $26,835,369 for net sales, with a net income of $3,215,250.

Earnings per share of common stock for the first three months of 1950 were $2.33, as compared with $1.58 for the same period last year. The firm had 1,973,722 outstanding shares of common at the end of March this year.



SUMMARY—The portland cement industry produced 14,238,000 barrels of finished cement in March, 1950, as reported to the Bureau of Mines, Department of the Interior. This figure represents a decrease of 8 percent over the production reported for March, 1949. Mill shipments totaled 14,613,000 barrels, an increase of 1 percent over the March, 1949, figure, while stocks of 23,204,000 barrels on March 31 were 0.4 percent above the March, 1949, totals. Clinker output in March, 1950, amounted to 15,688,000 barrels, representing a decrease of 5 percent over the corresponding month of the previous year.

PRODUCTION—The output of 14,238,000 barrels of finished cement in March, 1950, came from 147 plants located in 35 states and Puerto Rico. In the same month of 1949, 15,439,000 barrels were produced in 146 plants. Clinker production decreased 5 percent over the March, 1949, figure.

SHIPMENTS—Mill shipments of 14,613,000 barrels amounted to 1 percent more than those reported for March, 1949. The demand for cement in March, 1950, as indicated by mill shipments, increased over that of the previous month (February, 1950)—9,775,000 barrels. Shipments were higher in nine districts and lower in ten, than those reported in March, 1949. The changes range from a decrease of 36 percent in the Illinois district to an increase of 51 percent in the Kansas district. An increase of 15 percent is also indicated for the Puerto Rican district for March, 1950.

STOCKS—Stocks of 23,204,000 barrels of finished cement in March 31 were 0.4 percent above the March, 1949, figure, while clinker stocks, as of the same date, amounted to 8,692,000 barrels—an increase of 12 percent.

It's Really in the Pig's Eye—That Sand-Gravel Depot

Right in the Pig's Eye there will be a $200,000 sand and gravel storage depot, a barge dock, and a concrete mixing plant, according to a Minneapolis newspaper, which reported the proposed expansion move of the J. L. Shiely Company on Pig's Eye Island in the Mississippi River.

In commenting upon the enlargement project, A. R. Shiely, one of the owners of the company, stated that an aggregate plant now at Garrison, N. D., will be moved to a site on Grey Cloud Island, 12 miles south of Pig's Eye. The firm will spend about $750,000 for barges and tow boats.

National Gypsum's Baker Discloses 1st Quarter Sales

The National Gypsum Company launched its silver anniversary year "with the biggest first quarter in history," President Melvin H. Baker declared.

Earnings for the three months ended March 31 reached a new first-quarter peak of $2,052,086. Sales also were at a new high of $16,378,476. The profit was equal to 92 cents a share, as compared with $1,514,329, or 67 cents a share, in the first quarter last year. Sales in the 1949 first quarter were $15,125,712.

Net profit reported for the Kentucky Rock Asplant Company, Louisville, Ky., for 1949 was $77,271, as compared with $75,291 in 1948. Sales last year, according to President F. H. Bechill, were $1,221,014, against $927,490 in 1948.

Huge Cost of Fight On Air Pollution Told At Washington Meeting

With industry and the government spending about $100,000,000 a year to prevent the spread of air contaminants, the discussion of the latest control equipment at the first government-sponsored conference on air pollution, held in Washington, D. C., May 3-5, aroused considerable interest.

An expensive undertaking, installation of new control equipment, analysis of various industrial process operations, and stack sampling for contaminants cost about $10,000,000 in Los Angeles County, Calif., alone during the last two and one-half years, Secretary Chapman stated. More than $2,250,000 of private and public money also was spent to identify contaminants and their spread.

As a result of air pollution regulations, various cities in New York State spent more than $2,000,000 modernizing plants during 1948, and at least $3,500,000 during 1949, according to estimates of that state's health department.

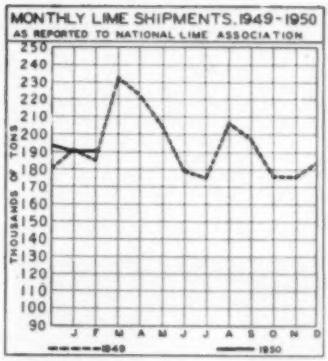
All types of modern equipment used to control air pollution, including bag filters, scrubbers and sonic collectors were discussed at the panel on equipment at this conference, which was proposed several months ago by the President. Mr. Truman requested Secretary of the Interior Chapman to organize an Interdepartmental Government Committee to sponsor it. Leading authorities on air pollution from government, industry, and educational and research institutions were invited to participate.

Ideal's '49 Production, Sales Highest in Company's History

According to the *Ideal Cement Mixer*, house organ of the Ideal Cement Company, 1949 was the best year in the history of the company. Income from sales amounted to $30,297,931, and total income rose to $30,584,698, or $.65 per man-hour.

Employees received $7,054,955 in wages and salaries; stockholders were paid $2,758,426 in dividends. During the year the firm's $19,000,000 expansion program, initiated in 1946, was carried forward to a point which made possible the tabulation of the company's greatest year in production, shipments, and sales. It was pointed out that 1949 was the first year in which the full production of all additional plant facilities were available.

Sale of Arl Doty's interest in the Greensburg Stone Quarry to C. A. Sanborn was announced recently at Greensburg, Ind. Mr. Sanborn and Paul Huber, who was formerly associated with Mr. Doty in quarry operations, will continue the business under the name of the Greensburg Limestone Company, Inc. Products are road stone and agricultural limestone.



According to data collected by the National Lime Association, 48 companies in February, 1950, shipped 191,360 tons of lime (126,171 quicklime; 65,189 hydrate). Reporting companies represent 58.9 percent of the association members' total capacity of record. Based on Pit and Quarry's estimate for the remainder of the industry, the total shipments were approximately 357,400 tons. Shipments by uses and grades for February, 1950, were:

	Quicklime	Hydrate
Agricultural	1,494	9,286
Building	12,165	29,163
Chemical	112,512	26,740
Total	126,171	65,189

Cover Picture....

• Located on a 15-acre plot of ground, 16 miles northwest of Chicago in Skokie, Ill., the new Research and Development Laboratories of the Portland Cement Association will provide unexcelled and virtually unlimited facilities for research on cement and concrete. The laboratory group consists of two architectural concrete buildings, joined by a covered walkway. The buildings provide a usable floor area of 98,000 sq. ft., most of which is contained in a two-story structure housing the principal laboratories and offices, an auditorium, a technical library, conference and reading rooms, and a cafeteria. A one-story basementless structure in the rear houses industrial processing laboratories, facilities for aggregate treatment and soil-cement testing, a wood shop and a cement storage room.

Building Volume Reaches $1,350,496,000 in April—All-Time High for Month

Construction records were broken for the second consecutive month with April's building and heavy engineering contract awards amounting to $1,350,496,000, topping by more than $50,000,000 the preceding month's all-time high, according to an F. W. Dodge Corporation report. Prior to last March the former record was $1,190,264,000, reached in June of wartime 1942. The April, 1950, figure showed a 4 percent increase over the preceding month and a 60 percent rise over April, 1949. Contracts awarded in April provided for 128,457,000 sq. ft. of building space.

Residential awards in April accounted for almost half of the month's total operations. The total in that classification was $674,836,000. This figure was 17 percent higher than the preceding month and 122 percent above the April, 1949, aggregate.

Nonresidential projects amounted to $448,619,000, to show a 42 percent increase over the corresponding month in 1949 but a 10 percent drop compared with the March, 1950, figure.

Heavy engineering rose slightly over the preceding month and April, 1949. The total last month was $227,041,000.

Contracts were awarded during the first four months of this year for a total of $4,161,082,000. This figure, according to the Dodge Corporation, was 58 percent better than the total for the corresponding period in 1949.

Residential awards for the four months of this year aggregated $1,954,470,000—more than double the total for the same four months of last year.

Nonresidential operations in the four-month period just ended rose 33 percent from $1,087,589,000 last year to $1,450,138,000 this year.

Heavy engineering awards also increased this year. This classification jumped to $756,474,000, representing a 17 percent rise over last year's four-month figure.

Fly Ash-Lime Combination As Aid to Soil Stabilization

As reported in *Limeographs*, Dr. L. J. Minnick of G. & W. H. Corson, Inc., Plymouth Meeting, Pa., read a paper on *The Use of Lime-Fly Ash Compositions in Highway Construction* at the meeting of the Lime-soils Stabilization Committee of the American Road Builders' Association at Cincinnati on March 8. The paper was prepared by Dr. Minnick and J. E. Havelin of the Philadelphia Electric Company.

The research project indicates that the addition of fly ash, a pozzolanic material, to certain soils which are deficient in pozzolana improves the effectiveness of lime in stabilizing these particular soils. Since fly ash is extremely low in cost, its use with lime is economically feasible. The combination of these two materials may achieve satisfactory base stabilization on some soils which do not respond to straight lime treatment.

Iowa Mfg. Co. Adds New Holland Products To Cedarapids Line

Iowa Manufacturing Company, Cedar Rapids, Ia., has acquired the complete inventory, manufacturing rights and patents on the line of double impeller impact breakers, vibrating screens, roll crushers and feeders formerly made by New Holland Manufacturing Company of Mountville, Pa. These products will now be manufactured at Cedar Rapids and sold and serviced by the world-wide Cedarapids distributor organization.

Several members of the new Holland personnel were also added, including V. R. Despard, Jr., former vice-president and general manager of New Holland, and J. D. Pfahl, assistant to the sales manager. Bud H. Kessler, New Holland chief engineer and four other New Holland engineers are now part of the Iowa engineering department at Cedar Rapids.

Alpha Portland Cement Moves to New Headquarters

On May 1, 1950, the address of the Chicago office of the Alpha Portland Cement Company, one of the largest cement manufacturers in the country and a pioneer in the industry, was changed to 308 W. Washington Street, Chicago, Ill.

For the last 23 years, the Alpha Company has been located in the Builders Building, 165 W. Wacker Drive, Chicago. The new headquarters will be more convenient to many of its customers and employees.

Bradley Sayre Carr, Popular Industrial Leader, Dies of Heart Seizure

Many of the readers of these pages will grieve with us over the recent passing of Bradley Sayre Carr, 60, manager of the pump department of the Chicago Heights, Ill., plant of the American Manganese Steel Division, American Brake Shoe & Foundry Co. He suffered a heart attack on May 15 at his home. The funeral in Rose Hill Cemetery on May 18 was attended by a host of his friends from all over the country, including many of his sand-and-gravel producer customers and fellow machinery manufacturers.

Bradley Carr will be greatly missed at the annual conventions, particularly that of the National Sand and Gravel Assn., where, in his cheery and friendly way, he helped to make each meeting successful and enjoyable, especially during exposition years. We, and many others, will miss his sound advice on many matters. An indication of the esteem with which he was regarded by his customers is the fact that a large dredging contractor in the South some years ago named a new dredge, one of the largest in existence, the *Bradley S. Carr*.

Bradley was a veteran of World War I and was a leading figure in American Legion affairs. He was also active in Masonic circles, having attended a meeting of the Chicago Heights Shrine only the day before his death. He was the holder of three degrees from Armour Institute, now the Illinois Institute of Technology, and for many years had served its interests. He joined Amsco in 1917 as a hydraulic dredge engineer. Bradley Carr was active in many other circles, including the Manufacturers Division of the National Sand & Gravel Assn. He had served as chairman of this group and was a member of the present and many past boards of directors.

Surviving are: his widow, Mrs. Helen

Bradley S. Carr

Weldon Carr; two sons, Dr. Bradley W. Carr, a staff member of Hines Memorial Hospital; and John S. Carr, who is employed in the Amsco pump department; five grandchildren; and a sister, Mrs. Pauline Carr Rost.

Memphis Bowlers Win at Marquette's Annual Tourney

The local champions of the Marquette Bowling Leagues, composed of personnel from Marquette Cement Manufacturing Company plants at Oglesby, Ill., Des Moines, Ia., Cape Girardeau, Mo., Nashville, and Memphis, Tenn., completed in Chicago on May 19, in the company's annual tournament for the Marquette Inter-Plant Bowling Championship Trophy. The Memphis team came out on top.

Following a tour of the Marquette general offices on the 35th and 36th floors at 20 North Wacker Drive, Chicago, on Friday afternoon, the bowlers attended an early dinner in their honor at the LaSalle Hotel. The trophy was presented to the Memphis keglers by Marquette's Director of Operations, Frank Moyle.

Saturday morning was devoted to a sightseeing tour of Chicago, after which the bowlers saw the Chicago White Sox-New York Yankees baseball game.

Northwest's Cement Men Hold Regional Safety Meeting at Bellingham

More than 50 representatives of the portland cement industry and quarries of British Columbia and western Washington recently attended a regional safety meeting at the Hotel Bellingham in Bellingham, Wash. It was the 13th session in a series of safety meetings sponsored by the Portland Cement Association across the nation.

In charge as general chairman at the Bellingham meeting was H. M. Krabbe, general superintendent of the Olympic Portland Cement Company. Gordon Toneue, vice-president and general manager of the Northwestern Portland Cement Company of Seattle, presided at the luncheon session.

The program included an analysis of cement plant accidents and their causes as a part of an extended drive to prevent disabling injuries and maintain the cement industry's position as one of the safest in the United States.

More Homes Built in March Than in Any Previous Month

March, 1950, was the best home-building month in history, according to preliminary estimates of the U. S. Labor Department's Bureau of Labor Statistics. Builders started 110,000 new nonfarm dwelling units during the month, an increase of 30,000 (38 percent) over February and 40,600 (59 percent) over March, 1949.

Well over 250,000 new dwelling units were put under construction during the first three months of this year. January, February, and March housing starts totaled 270,000, greater by 59 percent than the first-quarter volume for 1949. For the last nine months homebuilders have surpassed by an ever-widening margin their volume for the same month in the previous year.

Final 1949 reports show a total of 1,025,100 new dwelling units started. Of that year's total, 4 percent of the new housing was publicly owned, as compared with 2 percent in 1948.

R.R. Orders Cement Carriers For Service by Land and Sea

According to the *Lawrence Dragon*, house organ of the Lawrence Portland Cement Company, the Central Railroad of New Jersey has ordered 125 new 70-ton hopper cars designed for transportating bulk cement.

With this additional supply, the Central Railroad will have nearly 400 hopper cars with which to ward off a shortage during the heaviest cement-shipping season.

The railroad has also placed orders for three additional cement barges to augment its fleet in New York harbor and for five more Fuller-Kinyon pumps for bulk cement loading. These units will bring the road's total of barges to 14 and pumps to 17.

House Committee Retains Old Depletion Allowances And Creates New Ones

On May 18 the House ways and means committee flatly rejected President Truman's proposal to put $200,000,000 extra taxes on oil, gas, sulphur, and nonmetallic minerals operators. The committee then voted to create depletion tax deductions for other products which will cost the Treasury $15,000,000 to $20,000,000 in revenue annually.

Rejection of the Administration program for additional levies on oil, gas, sulphur, and nonmetallic minerals operators makes it doubtful that Congress will be able to offset with revenue the $1,080,000,000 of excise tax cuts the committee has tentatively approved. President Truman has indicated that he will veto any tax bill which does not make up the revenue lost in excise cuts.

In his tax message to Congress on January 23, Mr. Truman made a plea for a reduction in the depletion allowances used for tax deductions, to take into account the capital impairment in industries which take irreplaceable products from the earth.

The Administration had proposed that oil and gas depletion allowance be cut from 27½ percent to 15 percent; sulphur from 23 to 15 percent; and nonmetallic minerals from 15 to 5 percent. Instead, the committee voted to set up these new depletion allowances: for fuller's earth, refractory clays, fire clay, quartzite, perlite, calcined lime, chemical and metallurgical grade limestone, and diatomaceous earth, 15 percent; for sand and gravel, 5 percent; and for marble and granite, 5 percent.

American Geologic Institute Formed by Scientific Groups

A newly-established scientific body, the American Geologic Institute, is now operating under the auspices of the National Research Council. It is composed of member societies, and was formed for the purpose of stressing the need for geologists and geologic knowledge. Another major aim is to point out the ways in which the profession can aid in improving standards of living throughout the world.

Member societies include the following: American Association of Petroleum Geologists, American Geophysical Union, American Institute of Mining and Metallurgical Engineers, Geological Society of America, Mineralogical Society, Seismological Society of America, Society of Economic Geologists, Society of Economic Paleontologists and Mineralogists, Society of Exploration Geophysicists, Society of Vertebrate Paleontology.

Heading the work of the new institute is Dr. David M. Delo, director.

April Construction Activity Tops All Previous Records

Construction activity in April, led by private homebuilding, exceeded all previous records for the month of April, according to a report released by the Construction Division of the U. S. Department of Commerce and the U. S. Department of Labor's Bureau of Labor Statistics.

Total value of new construction put in place during April was estimated at $1,700,000,000, a seasonal increase of 10 percent over the March estimate and 24 percent more than in April, 1949. During the first four months of this year, a total of $6,100,000,000 was spent for new construction, 20 percent more than in the same period of 1949, as a result of corresponding increases in both private and public construction outlays.

Total outlays for all types of new private construction during April were estimated at $1,254 million, an advance of 9 percent over the previous month and 27 percent more than in April, 1949. Public expenditures for new construction, amounting to $443 million last month, were 15 percent above March and 16 percent larger than public outlays in April, 1949.

Perlite Institute Seal Assures Approved Product

The accompanying official seal of the Perlite Institute has been approved and adopted by the member companies, according to an announcement released by Wharton Clay, secretary.

The seal will be used on bags of processed perlite, testifying that the contents meet the rigid specifications of the institute; it may be used only by company members with these requirements.

Because it is a relatively new product, perlite has been a subject of much confusion. The seal was designed to end the confusion and assure the dealers and users of perlite that the product they are buying is a standardized product manufactured to comply with rigid Perlite Institute specifications which conform to ASA A42.1 with refinements. In establishing these specifications, such organizations as the Underwriters' Laboratories, Inc., the National Bureau of Standards, the John B. Pierce Foundation, and many colleges and universities throughout the country have been consulted.

New official Perlite Institute seal.

Pennsylvania Health Dept. Gets Mobile Laboratory For Air Pollution Tests

Pennsylvania's new air pollution and industrial hygiene mobile laboratory, the only one of its type in the country, has just been placed in service by the state's Bureau of Industrial Hygiene.

Designed and supplied to the state by Mine Safety Appliances Company, Pittsburgh, the laboratory is equipped with more than 25 scientific devices for field sampling and quantitative and qualitative analyses of atmosphere in industrial communities and factories.

• Dr. N. W. Vaux, Dr. J. Shilen, and G. H. Deike Sr., inspect the electrostatic air sampler.

The mobile laboratory was turned over to the Pennsylvania Department of Health during presentation ceremonies in Harrisburg on April 11 by George H. Deike Sr., president of Mine Safety Appliances Company. It was accepted by Governor James H. Duff, Dr. Norris W. Vaux, secretary of the Department of Health, and Dr. Joseph Shilen, director of the Industrial Hygiene Bureau.

Operation of the mobile laboratory will be under supervision of the state's new Air Polution Division of the Industrial Hygiene Bureau.

The laboratory is in a closed route van type body with specially designed built-in work benches, cabinets, racks, and storage compartments.

Because some surveys will be made in locations without power or water supplies, the laboratory has been made self-sufficient for these necessities. It is equipped with a gasoline motor driven generator for electrical service, a 30-gallon fresh water tank, a 10-gallon distilled water tank, and two liquified petroleum gas tanks to supply fuel for Bunsen burners. The laboratory also has a weather-tight connection for an outside power source. A separate ventilating fan is installed. Quantitative and qualitative analyses of air samples can be made quickly on the spot after the samples are obtained.

One of the principal devices is an MSA Electrostatic Sampler with which laboratory technicians can sample atmospheres for all types of particulates, including dust, fumes and smoke resulting from many industrial processes.

Lt. Gen. Eugene Reybold To Succeed C. M. Upham In A.R.B.A. Executive Post

Lt. Gen. Eugene Reybold, wartime Chief of Engineers, U. S. Army, has been appointed executive vice-president of the American Road Builders' Association, with headquarters in Washington, D. C.

His appointment was announced by the association's president, Col. E. R. Needles, New York consulting engineer. General Reybold succeeds Charles M. Upham, who recently retired as executive head of A.R.B.A. after 24 years as its engineer-director.

Lt. Gen. Eugene Reybold

Prominent in the engineering profession and in the construction and equipment fields, General Reybold has had assignments as district engineer at Buffalo, N. Y., in charge of river and harbor work on Lakes Erie and Ontario and the Niagara and St. Lawrence Rivers; district engineer at Wilmington, N. C., and Memphis, Tenn.; and as Southwestern Division engineer at Little Rock, Ark. Other tours of duty took him to Virginia, Washington, D. C., and the Philippines.

Highway Improvement Course Presented by Roads Bureau

The Bureau of Public Roads is currently conducting a course on the theory and practice of highway improvement and utilization in the United States. More than 40 administrators and engineers from the highway departments of 16 foreign countries, have joined the course.

The group spent the first two weeks in Washington attending a series of introductory and orientation lectures and demonstrations. This will be followed by a three-week bus trip to study and observe highway construction and maintenance in the field. The itinerary includes parts of Virginia, North Carolina, Tennessee, Kentucky, Ohio and Pennsylvania. Following the bus trip, the delegates will spend five weeks in Washington on specialized studies of the phases of highway activity of particular interest to each of them.

During the third five-week period the group will break up into small delegations, each of which will visit three or four selected states for more detailed studies of highway administration, research, planning, construction and maintenance.

Three New Directors Elected For Marquette Cement Co.

Three new directors, including the daughter of one of the founders of the company, were recently elected to the board of Marquette Cement Manufacturing Company. This action came at the annual meeting of Marquette stockholders held in Chicago on May 16. The new members of the board are Mrs. Mary Dickinson Hoffmann of St. Joseph, Mich., Edward H. McDermott of Chicago, and Deforest S. Colburn, vice-president of the Marquette company.

Mrs. Hoffmann is the daughter of William Dickinson who, with his brothers, Theodore and John Dickinson, established the original Marquette Cement Company in 1898. He died in 1925 while vice-president of the firm.

Mr. McDermott is a director of a number of business corporations. During World War II he served in Washington, D. C., as consultant in the Office of War Mobilization.

Mr. Colburn, long experienced in the construction field, joined Marquette in 1942 as service engineer; he subsequently supervised the construction of a major addition to its Oglesby, Ill., plant which more than doubled the capacity of that operation. He was made vice-president in 1933 and will continue in this capacity.

Deforest S. Colburn

Generoso Pope Succumbs; Leaves Major Portion Of Estate to Charity

Generoso Pope, founder and president of the Colonial Sand & Stone Company, Inc., New York, N. Y., died recently in that city, an impressive exponent of the American legend of the self-made man. At the time of his death Mr. Pope had built up a fortune of $5,000,000. He began his career as a laborer earning $3 a week.

Of this sizable estate Mr. Pope allocated $4,000,000 to charitable, philanthropic and educational organizations. He bequeathed all of his Class B common stock in the Il Progresso Italo-American Publishing Company to the Generoso Pope Foundation, Inc., which he founded for charitable purposes in 1947. The foundation was also named beneficiary of 51 percent of the total outstanding shares of the common stock of the Colonial Sand & Stone Company. The residuary estate will be held in trust for Mrs. Pope and their sons, Anthony, Fortune, and Generoso Jr.

Photos of Exhibit Layouts Solicited for Idea Exchange

An appeal from Vincent P. Ahearn, executive secretary of the National Sand and Gravel Association, concerns exhibit layouts. Mr. Ahearn requests members to forward to N.S.G.A. headquarters all available photographs of exhibit layouts used at local home shows, builders' shows, county fairs, etc.

It is the intention of Mr. Ahearn to prepare a file of photographs of exhibits which will be made available to members upon request, since the association is frequently called upon for assistance in planning such shows.

Members are requested to send two prints of each photograph and to state the particular types of exhibit found most effective.

● Correction

According to word from E. O. Welles, assistant to the manager of operations for Basic Refractories, Inc., an item appearing in our April issue (page 47) unfortunately contained information which does not tally with the actual facts.

Basic's kiln installation at Gabbs, Nev., which we had been told was "completed," had not been finished when we heard from Mr. Welles; and production on calcined magnesite and brucite had not begun. Said Mr. Welles, "We are still continuing preliminary plans for the construction of this plant."

Sorry that we speeded up operations to this degree. For further information on progress at Gabbs we shall rely upon word from Basic Refractories.

Officials of the United States Gypsum Company recently announced plans for the expansion and improvement of the firm's Fort Dodge, Ia., plant. Construction will begin in the immediate future.

Holmes Safety Assn. Announces 1950 Awards For Minerals Industries

In recognition of individual deeds of heroism in saving life in mines and plants of the mineral industries during the past year, the Joseph A. Holmes Safety Association has approved five Medals of Honor, James Boyd, director of the Bureau of Mines and president of the association, has announced. The association also approved 277 Certificates of Honor in recognition of outstanding contributions to safety in the mineral industries of the United States.

Approval of these awards was voted by the association at its annual meeting on April 18, in the Department of the Interior Building in Washington, D. C.

The award winners were selected from more than 500 recommendations received during the year from operating companies, national associations, and individuals. The organization was formed in 1916 to commemorate and further the work of the late Dr. Joseph Austin Holmes, first director of the Bureau of Mines.

For exceptional safety records and outstanding success in supervisory work, the association this year approved 277 Certificates of Honor. These included 58 for presentation to individuals, 75 for coal mines and companies, 64 for metal mines and companies, 53 for petroleum plants and companies, 14 for cement plants and quarries, and 11 for nonmetallic mines and companies.

All officers of the association were re-elected. Dr. Boyd announced that standing committee appointments would be made later. The association voted to enlarge the membership of the Special Awards Committee to include a wider representation of the petroleum, cement, quarrying, and other nonmetallic minerals industries.

On another action the association lowered qualification for Certificates of Honor for individuals from 45 years of service without lost-time accidents to 40 years.

The following individuals were awarded Certificates of Honor by the council of the association for promoting safety in mining and mineral industries, and for supervising the work of others:

Charles H. Davis, Certain-Teed Products Corporation, Blue Rapids, Kans., for working in gypsum mines over 52 years, from April, 1898, and still employed, without incurring a lost-time injury.

Salvador Macaluso, The Bessemer Limestone & Cement Company, Bessemer, Pa., for supervising a crew in packing and shipping over 10,000,000 bbls. of cement between January 1, 1942, and January 1, 1950, a total of 546,432 man-hours, without a lost-time accident.

William P. Hovis, The Bessemer Limestone & Cement Company, for supervising an electrical maintenance crew without a lost-time accident from January 1, 1938, to January 1, 1950, a total of 476,731 man-hours.

Certificates of Honor for notable achievements in safety also were awarded the following:

Cement plants and quarries: Catskill plant, Alpha Portland Cement Company, Cementon, N. Y.; St. Louis plant, Alpha Portland Cement Company, Lemay, Mo.; Bessemer limestone quarry, The Bessemer Limestone & Cement Company, Bessemer, Pa.; Natividad plant and quarry, Kaiser Aluminum & Chemical Corporation, Salinas, Calif.; Dallas quarry, Lone Star Cement Corporation, Dallas, Tex.; St. Stephens quarry, Lone Star Cement Corp., Jackson, Ala.; North Birmingham quarry, Lone Star Cement Corp., Birmingham, Ala.; Dolonah quarry, Tennessee Coal, Iron and Railroad Company, Bessemer, Ala.; No. 5 limestone mine, Tennessee Coal, Iron and R. R. Co., Bessemer, Ala.; Monarch quarry, Colorado Fuel and Iron Corporation, Garfield, Colo.; limestone mine, Pittsburgh Plate Glass Company, Barberton, O.; Bellefonte plant, National Gypsum Company, Bellefonte, Pa.; gray plant, Medusa Portland Cement Company, York, Pa.; and Northampton plant, Universal Atlas Cement Company, Northampton, Pa.

Nonmetallic mines and mining companies: Wagon Wheel Gap fluorspar mine, Colorado Fuel & Iron Corporation, Wagon Wheel Gap, Colo.; The Carey Salt Company, Hutchinson, Kans.; mine and mill, Potash Company of America, Carlsbad, N. M.; surface and open-pit mines, Reynolds Mining Corporation, Alexander, Ark.; Longview plant, Reynolds Metals Company, Longview, Wash.; bauxite mine, Reynolds Mining Corporation, Alexander, Ark.; Akin plant, Tennessee Valley Authority, Columbia, Tenn.; National City quarry, National Gypsum Company, National City, Mich.; Van Sciver sand and gravel plant, Warner Company, Philadelphia, Pa.; Y-12 plant, Union Carbide and Carbon Corporation, Oak Ridge, Tenn.; Oak Ridge National Laboratory, Union Carbide and Carbon Corporation, Oak Ridge, Tenn.

Solvay Process Sells Quarry To the Carey Salt Company

The Solvay Process Company has sold its rock quarry near Winnfield, La., to the Carey Salt Company. Price and terms of the sale have not been made public.

The property includes about 1,800 acres of land and a 100-foot railroad right of way into Winnfield, a distance of about five miles.

Carey Salt Company's salt mine is under this tract, and up to now has been mined under a lease agreement.

• Red Hill (Va.) quarry is one of the largest of Superior Stone Company's producing operations in Virginia and North Carolina. This view, taken from the top of the surge pile shows screening, crushing, loading units, and stockpiled granite aggregate below. The primary crusher is a 42-in. Allis-Chalmers. Further crushing is done by three Symons crushers. Jalloy heat-treated plate is extensively used for liners in chutes and truck bottoms. Equipment at Red Hill has the capacity to produce 600 t.p.h.

• Aprons of ⅜-in. Jalloy heat-treated plate from these two Ty-Rock screens, subject to sliding abrasion from minus 1-in. granite, last 18 months at the Superior Stone Company's plant.

From the State Capitals

COLORADO—Gov. Walter W. Johnson has declared that a multi-million-dollar bond issue may be necessary to finance a long-range highway modernization program in Colorado. He estimated that a minimum bond issue of $50,000,000 to $75,000,000 might be necessary.

Colorado's Attorney General John W. Metzger ruled that it is permissible for the State Highway Department to begin purchasing right-of-way at once for the projected Denver-Boulder toll road, using highway funds with reimbursement later from the first sale of bonds for the toll highway.

The right-of-way cost has been estimated at about $400,000. The total cost of the toll turnpike is expected to exceed $5,000,000.

GEORGIA—A state constitutional amendment dedicating all gasoline and motor vehicle tax revenues to highway purposes was advocated by Gov. Herman Talmadge.

Georgia state highway funds for the 1949 calendar year totaled $24,478,148. Combined gasoline taxes and motor vehicle licenses yielded a net total of $15,805,818. Under the proposed anti-diversion amendment, the entire latter amount would be available for highways. The governor made no mention of other taxes to replace funds that would be taken from other state services, although it has been otherwise predicted that the state may have to turn to a general sales tax.

MARYLAND—Maryland's State Board of Public Works authorized a $25,000,000 bond issue to finance school and other construction projects, with May 31, 1950, set as the date for opening bids on the new issue.

Added to the $8,808,000 of school-construction bonds sold in January, the new bonds will bring to $29,017,000 the total issued under the $70,000,000 school construction program approved by the 1949 state legislature.

MASSACHUSETTS—A proposed new $100,000,000 state bond issue to finance an expanded highway construction program was given a unanimously favorable report to the Massachusetts Legislature by its committee on highways and motor vehicles.

A similar $100,000,000 highway bond issue was authorized by the 1949 Massachusetts Legislature.

MICHIGAN—Gov. Williams broadened the scope of the current special session of the Michigan Legislature to consider a bill authorizing the state and local governments to issue bonds for express highway construction and to pledge their shares of gasoline and weight tax revenue to pay off such bonds.

A bill was introduced in the state senate which would allow Detroit to issue $140,000,000 in 20-year bonds to build the Edsel Ford and John C. Lodge expressways in four years.

MISSISSIPPI—Under its new pay-as-you-go plan $12,000,000 is the maximum amount the state highway department can spend for highway contracts in a year.

The new program will enable the department to reduce a bonded indebtedness of $68,000,000 and to build new debt-free roads.

NORTH CAROLINA—North Carolina's supreme court has formally approved the state's $200,000,000 road bond program and the manner in which it is being administered.

The high state tribunal affirmed a ruling by a lower court that the bond act does not require all bond money to be spent for paving; that the state highway department may include stabilization of its program; and that the commission may use bond funds for the purchase of machinery.

The commission set aside $5,000,000 from the 1949 bond act's $20,000,000 equalization fund for machinery purchase and the money is repaid, the commission has said, through a system of rents charged against the books of the highway divisions in which the equipment is used.

The court said it "found that the plan . . . for handling the purchase and use of road building machinery in the several counties . . . was not in violation of the bond act."

OKLAHOMA—Actual construction of the projected toll superhighway between Oklahoma City and Tulsa is expected to get under way in the fall.

A contract for the sale of $31,000,000 in revenue bonds at 3.4130 per cent interest was recently awarded by the Oklahoma Turnpike Authority.

If a favorable ruling is obtained from the state supreme court, the authority hopes to have money in hand by July 1. Engineering work and purchase of right of way will start as soon as the money is received.

WYOMING—In an opinion which will facilitate the financing of sewage disposal projects by Wyoming municipalities, the Wyoming Supreme Court upheld the validity of a proposed $1,100,000 revenue bond issue for a Cheyenne municipal sewage disposal plant.

The high state tribunal ruled unanimously that the proposed bonds are not general obligation bonds but revenue bonds, "payable solely out of a fund to be created."

Stanton Walker Fellows Begin Studies September 1

Students appointed to the Stanton Walker Fellowships for 1950-1952 at the University of Maryland will enter upon their studies on September 1, 1950, and continue through June 30, 1952, with July and August of 1951 free. Two fellowships are sponsored by the National Sand and Gravel Association. The stipend is $750 per year, paid in ten monthly installments. Tuition and other fees are paid, and required textbooks are purchased by the association.

Appointees will register in the graduate school of the University of Maryland. Work will be scheduled so that the fellows' time will be divided about equally between study of selected and approved courses and research on appropriate problems related to the sand and gravel industry. The faculty supervisor is the dean of the college of engineering.

Completion of the work leads to the degree of Master of Science. Fellowships are open to qualified graduates in engineering from accredited colleges and universities.

Inhaling Lime Dust Fatal To Worker at State Plant

The Richmond (Va.) *Times Dispatch* recently reported a fatal accident in which David E. Smith, assigned to work at the Staunton state lime grinding plant, fell into a pile of lime and suffocated. It was the first such mishap in the history of the plant.

The victim, who was shoveling lime into a conveyor, was caught by a "slide" and fell face downward into the pile. It is presumed that death was caused by suffocation when he inhaled a quantity of the fine dust. It was not indicated whether protective devices were provided to guard against such an accident. *Limeographs*, in relaying this occurrence, urges careful attention to proper safety measures, in order to avoid accidents of this kind in the lime industry.

U.S. Construction Volume Approaching Prewar Level

According to *Construction*, published by the Building Construction Employers Association of Chicago, Inc., the increasing level of the building industry is gradually regaining its important role in the American economy.

The 1949 volume, approximately 11 percent of the gross national product of $258,700,000,000, approched the prewar figures for construction, when the building contract volume averaged more than 13 percent of the total production of goods and services.

Vermiculite Institute Issues Film on "Wonder Mineral"

A new sound film showing the uses of vermiculite products in construction has been issued by Vermiculite Institute, according to E. R. Murphy, executive secretary. The film is entitled *Vermiculite, the Wonder Mineral.*

Television stations throughout the United States have already televised the film or made arrangements to do so, Mr. Murphy stated; and as no trade names are used, it is in demand as an educational movie for colleges, short courses, and group meetings of all kinds.

The film runs about 18 minutes. It can be obtained on loan without charge from E. R. Murphy, Vermiculite Institute, 208 South LaSalle St., Chicago 4. The only requirement is a competent operator and standard projection equipment.

30 years ago in Pit and Quarry

By WALTER E. TRAUFFER

THE activities of the National Lime Association highlighted the June, 1920, issue of PIT AND QUARRY. The program of its annual convention to be held at the Hotel Astor in New York City indicated that this was to be a meeting no producer should miss. Charles Warner (The Warner Company), president, was to review the association's work during the year, and its aims and ideals. Other speakers on timely subjects were: Col. C. W. S. Cobb (Glencoe Lime & Cement Company); George B. Wood (Rockland & Rockport Lime Company); C. M. Cadman (Pacific Lime Plaster Company); J. H. McNamara (Eagle Rock Lime Company); and H. B. Mathews (Mississippi Lime & Material Company). The reports of standing committees were to be given by their chairmen: A. D. Warner Jr. (Uniform Cost Accounting); B. L. McNulty (Trade Practices); and J. G. Whelan (Accident Prevention and Insurance). Many excellent papers were scheduled on a wide variety of important subjects. Some of these were covered in the report of this convention in the July, 1920, issue which will be reviewed next month. An editorial briefly summarized the aims and achievements of this progressive association.

Another article described the uniform lime law which had been proposed by the National Lime Association for use by the various states. This law would assure the former of accurate information on the amount and availability of essential liming constituents in the material he purchases. It would help the producer by eliminating the inconsistencies which existed in the laws of various states.

The Pennsylvania Sand & Gravel Producers' Association was organized at a meeting held May 7 in Pittsburgh. The following officers were elected: president, J. R. McGaw (Ohio River Sand Company); vice-president, A. W. Dann (Keystone Sand & Supply Company); secretary-treasurer, Harry Davison (J. K. Davison & Bro., Inc.); executive secretary, C. C. Whiteside (Rock Point Sand Company).

Producers operating on the Great Lakes formed the Great Lakes Sand & Gravel Producers' Association intended to protect their interests. Its immediate aim was to contest a bill which had recently been passed by the Ontario legislative assembly, providing for governmental supervision of sand and gravel operations in Lakes Ontario, Erie and Huron. President of this new group was H. J. Gerhardstein (Lake Erie Sand Company); vice-president was J. S. Scobel (Erie Sand & Gravel Company); Joseph T. Farrell (Homegardner Sand Company) was secretary-treasurer.

The Missouri Valley Association of Sand & Gravel Producers on May 12 held a meeting at the Muehlebach Hotel, Kansas City, which was apparently all business, covering a wide variety of problems facing producers in this area. John Prince (president of the Stewart Sand Company) was the able chairman of this meeting.

Another new association, joining together the producers of all mineral aggregates in that state was the Minnesota Mineral Aggregate Association. Officers elected at the organization meeting were: president, J. L. Shiely (J. L. Shiely Company); vice-president, J. A. McLoughlin (New Ulm Stone Company); secretary, P. J. Asselin (Blue Limestone Company); treasurer, John Wunder (Trap Rock Company).

Several items and articles in that issue told what various producer groups were doing in attempting to protect their industries against discrimination in the distribution of freight cars by the I.C.C. and to relieve the freight car shortage. Steps were also being taken to induce states and other large purchasers of aggregates to inspect shipments at the plants instead of on the job. This would eliminate the delay in unloading cars and help to relieve the car shortage.

The issue would not have been complete without at least two good articles by Daniel J. Hauer, associate editor. One was a complete illustrated treatise on *Gopher Hole Blasting in Quarries*, the other told how to obtain *Extra Dividends from Waste in the Limestone Business*.

News items in this issue told of the plans of the Pyramid Portland Cement Company to build a plant at Valley Junction, near Des Moines, Ia.; of the decision of the City of Los Angeles to retain title to the cement plant at Monolith, Calif.; of the formation of the Ohio Gravel Ballast Company, Cincinnati, O., through the consolidation of six producing companies; of the formation of the Leathem D. Smith Stone Company, Sturgeon Bay, Wis.; of the absorption of the Becker Limestone Company by the Dolomite Products Company of Rochester, N. Y., etc.

The feature plant article of the issue described the "Circle 3" operation of the Washed Sand & Gravel Company at New London, Minn., which was owned by Foley Brothers of Mesabi Iron Range fame.

G-E Ten-Car Display on Tour Of 150 Industrial Centers

The General Electric Company unveiled its "More Power to America Special," said to be the largest electrical display kit ever built, in Grand Central Terminal at New York City on April 24.

Almost a quarter of a mile long, the 10-car exhibit train represents the first attempt to display, in one series of related exhibits, the complete range of products for the production, distribution, and industrial utilization of electric power.

Believed to be unique in industrial marketing history, the silver streamliner is filled with exhibits of more than 2,000 of the most modern electric products, systems, and techniques.

The "Special", launched on the rails by the company's Apparatus Department, was in New York on the first lap of a nationwide tour. It will visit approximately 150 key industrial centers during 1950 and 1951.

At each stop on its tour, the exhibit train will be inspected by invited representatives of electric utilities, the manufacturing and transportation industries, the armed services, the federal government, and municipalities.

The train will not be open to the general public, according to G-E spokesmen. They explained that the exhibits aboard the train have been designed specifically to interest those who produce electric power and those who put it to work in industry and the community.

Arrayed throughout the train are displays covering the complete range of appartus for industry.

• 10-coach General Electric Display as it takes to the rails.

HARNESSING THE WHITE RIVER

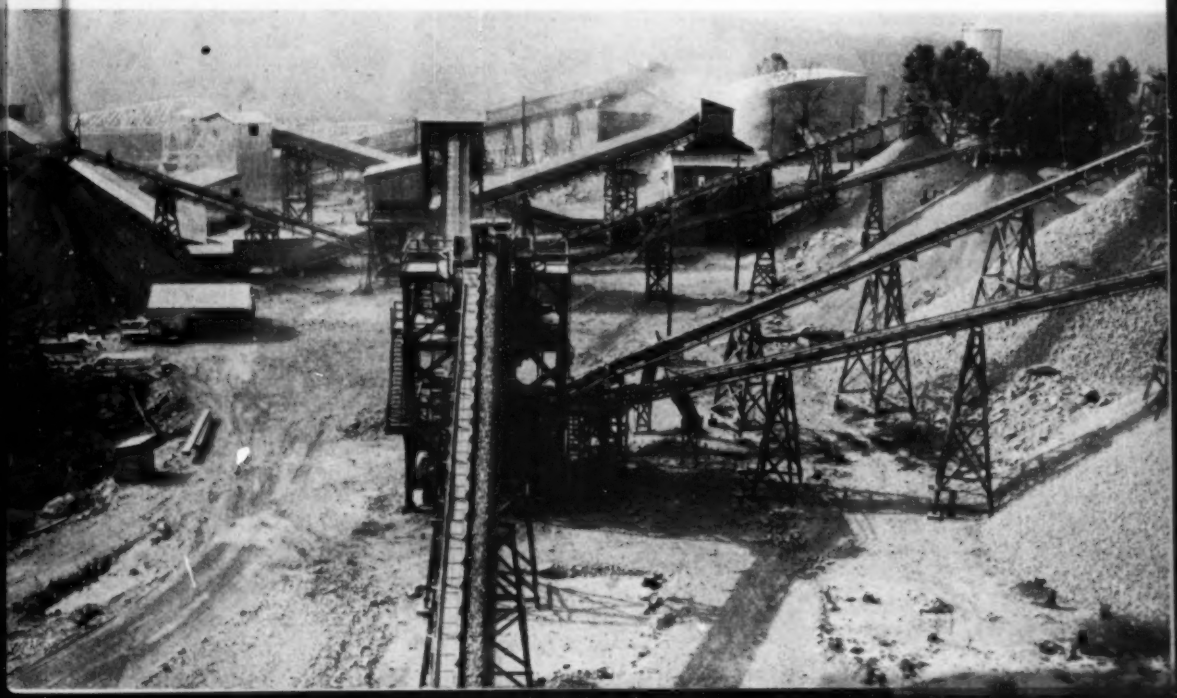
By EDWARD BRUNENKANT

Recovering and Processing some 3,800,000 Cubic Yards of Aggregates for Bull Shoals Dam Turned Out to be One of the Toughest As Well as Biggest Jobs of Modern Times

BULL SHOALS DAM, near Mountain Home in northern Arkansas, will be one of the most massive concrete dams in the United States. Constructed at a cost of around $76,000,000, it will be a key unit in a system of reservoir projects for the control of the turbulent White River and its tributaries. When it is completed, some 2,500,000 cu. yds. of concrete, 3,800,000 cu. yds. of aggregate (including 1,100,000 cu. yds. of manufactured sand), more than 6,200,000 lbs. of reinforcing steel, and 10,300,000 lbs. of other metal will have gone into this structure.

The maximum base width of the dam at the spillway section will be 230 ft.; its height above the foundation, 283 ft.; and its length across the top, 2,256 ft.—about seven city blocks. A 26-ft. roadway will be laid on top of the dam, 41 ft. above the spillway crest. Sidewalks 4 ft. wide will be provided on both sides of the roadway, and concrete parapets with pipe handrails will extend the full length of the dam.

The Bull Shoals Reservoir is designed for the combined purposes of flood control and generation of hydro-electric power. Its flood storage will benefit more than 1,000,000 acres of land, while its initial power units will produce 575 million kilowatt hours of electricity a year—enough electric power to supply a city with a population as large as

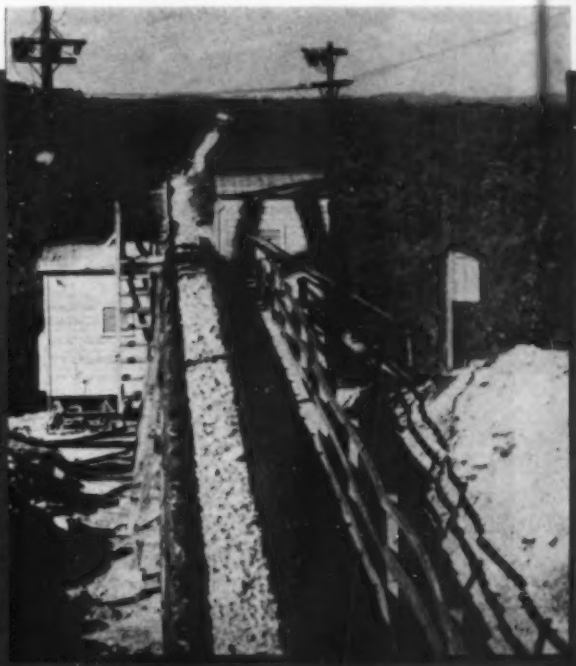


Above: A general view of Bull Shoals Dam under construction near Mountain Home, Ark. Visible in the background at the left is the concrete plant which will supply about 2,500,000 cu. yds. of concrete for this project.

Below: More than 100,000 tons of minus 6-in. aggregate is stockpiled at the quarry, ready to be delivered to the dam site via the 7-mile conveyor system.

Below: A part of the 7-mile conveyor system carrying the aggregates from the quarry to the dam site.

Opposite page: A view of the screening towers at the dam site. Aggregates from the stockpiles at the right are reclaimed on a belt running in a tunnel beneath the piles.



those of Little Rock, Tulsa, and Springfield, Mo., combined.

The White River Valley in the vicinity of Bull Shoals has long been recognized as a desirable location for a dam. In 1910 Congress approved an application of the Dixie Power Company for the construction of a dam about 10 miles below the present site, but a presidential veto voided the action. In 1919 this company again obtained a construction permit but could not finance the project. Later the White River Power Company took over the project but was discouraged by the results of foundation tests and abandoned it.

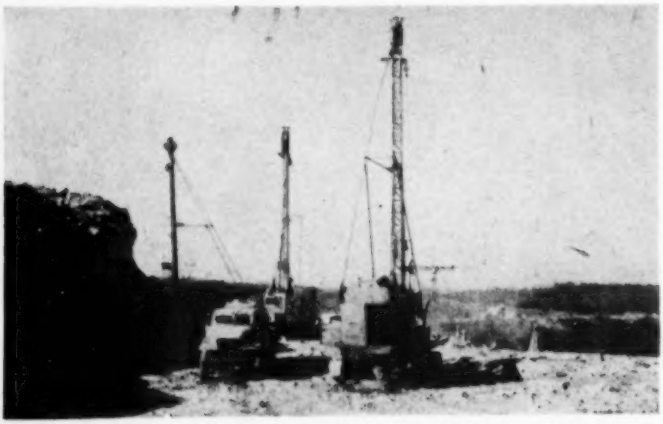
In a report submitted to Congress in 1931, the Wild Cat Shoals site, a few miles downstream from Bull Shoals, was included in a group of eight reservoirs. A report submitted in 1937 by the Chief of Engineers presented a comprehensive flood-control plan for the Ohio and lower Mississippi Rivers which included recommendation for construction of six reservoirs in the White River basin. In 1938 Congress authorized the expenditure of $25,000,000 for the initiation of this program of construction.

Left: M. H. Slocum (left), in charge of the whole project for Ozark Dam Constructors, primary contractor for Bull Shoals, talks things over with R. B. McRae, project engineer.

A report published in 1940 presented the Bull Shoals site as an alternative for the Wild Cat Shoals site, where foundation conditions were found to be unfavorable. In 1941 Congress modified the plan for the White River Basin to include the Bull Shoals Reservoir and authorized $24,000,000 for the prosecution of this plan.

Construction at Bull Shoals was started in June, 1947, under a contract awarded to the Ozark Dam Constructors, an outfit made up of the following contractors: Brown & Root, Inc., Houston, Tex.; Wunderlick Contracting Co., Jefferson City, Mo.; Morrison-Knudsen Co., Inc., Boise, Idaho; David G. Gordon, Denver, Colo.; Condon-Cunningham Co., and Peter Kiewit Sons Co., Omaha, Neb.; J. C. McGuire, Los Angeles, Calif.; Charles H. Tompkins Co., Washington, D. C.; and Winston Brothers Company, Minneapolis, Minn. Construction of the dam and appurtenant works was started in June, 1947. According to the terms of the contract, the job is to be completed within 1250 days from the date started. Since work at the time of our visit appeared well ahead of schedule, it seems likely that the job will be completed far in advance of the closing contract date.

View of the northeast quarry face, showing badly pocketed dirt-clay deposits.



Three blast hole drills at work in the quarry. About 35 cu. yds. of rock are blasted down for each foot drilled.

Quarry Operation

Some 3,800,000 cu. yds. of stone will be used in the construction of Bull Shoals Dam. During the peak pouring periods, in excess of 9,000 cu. yds. of minus 6-in. rock must be supplied to the dam site every day. Recovering this quantity of stone under the most ideal conditions would be in itself a tremendous undertaking. Under the conditions prevalent at this quarry the job is one which severely tests the endurance of both the men and the machinery. This quarry site, however, is the only one in the countryside adjacent to the dam site with a deposit of limestone sufficient in quantity and quality to supply the rock requirements for the dam. The Flippin Materials Company, made up of the same joint contractors composing Ozark Dam Constructors, was awarded the $9,447,100 quarry contract.

One of the more serious limitations to this quarry site, from an operating standpoint, is the prodigious amount of overburden that has to be removed to get at the usable rock aggregate. For every cubic yard

of good stone recovered, about one cubic yard of dirt or shale had to be stripped and wasted. In addition certain sections of the deposit are badly streaked with vertical clay beds that contaminate the aggregate, particularly in rainy seasons. For the latter reason, blasting is very selective. Usually, only enough stone is shot at one time to keep slightly ahead of the loading shovel.

Much of the stripping that could be moved with tractor-drawn equipment was sublet to M. E. Gillioz, a contractor from Monett, Mo. During the winter months of 1948-1949 Mr. Gillioz stripped some 750,000 cu. yds. of dirt. The remainder of the overburden was removed by Flippin Materials Co. Since most of this yardage was composed of shale or faulty limestone, it had to be drilled and blasted before it could be moved.

Drilling equipment for this work consisted of two Bucyrus-Erie 27-T blast hole drills carrying 6-in. bits. The holes were loaded with 5- or 6-in. cartridges of Hercules powder. About 2 to 2½ cu. yds. of overburden were loosed for each pound of powder used. A Lima 1201 diesel shovel with a 3½-cu. yd. bucket loaded this waste material into 12-cu. yd. Euclids which dumped it into nearby ravines.

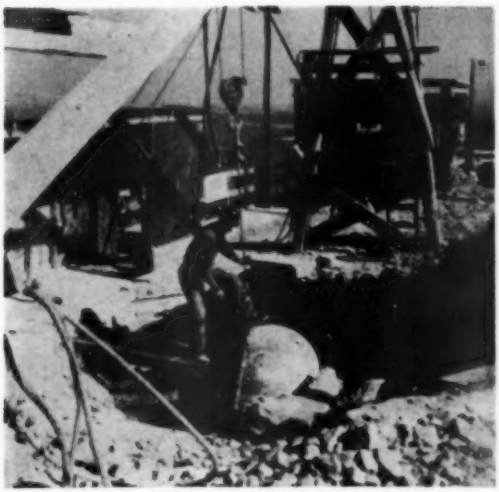
The stone which is used for concrete aggregates is a dolomitic lime-

Blast stone being loaded with a 5-cu. yd. electric shovel into a 25-cu. yd. side-dump truck.

Right: One of the rear-dump quarry trucks discharges a load over the primary crusher.

Below, left: An overhead hoist clears the opening of this 42-in. primary gyratory crusher.

Below, right: Big boulders are made into little ones with a 5000-lb. drop-ball at the end of this crane.

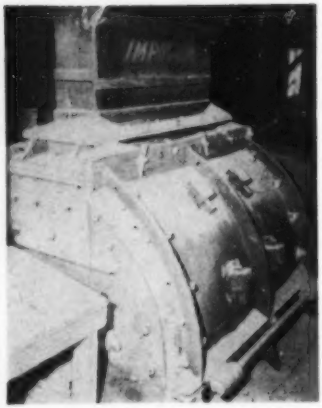


stone with about 20 percent magnesium and a silica content of 12 to 15 percent. Blast holes of 9-in. diameter are sunk 83 ft., 3 ft. below the quarry floor. Three new electric-powered 29-T Bucyrus-Erie churn-type drills are employed for this purpose. Performance data indicates that each machine will drill about 4 to 5 ft. per hour and that bits are good for about 40 ft. before redressing. These bits are sharpened in a small blacksmith shop equipped with an oil-fired furnace and a Bucyrus-Erie No. 12 bit sharpener.

The holes are drilled with 33-ft. spacing and 30-ft. burden in multiple rows. In order better to break up the top portion of the face, 2½-in. diameter holes 18 ft. deep are drilled on 5-ft. centers around the blast holes. This work is done with Ingersoll-Rand wagon drills. Air is supplied by two Chicago Pneumatic air compressors—one 500-c.f.m. unit and the other a 265-c.f.m. model.

Average loadings for each 9-in. blast hole includes about 200 lbs. of 65 percent Hercules Gelamite in the bottom followed by 1800 lbs. of 50 percent Hercomite B. The maximum number of holes fired in one shot to date is 40. Estimates of the rock recovered indicated that each blast brings down about 35 cu. ft. of stone per foot of drilled hole, with a powder ratio of 1.4 cu. yd. per pound of powder.

During this writer's visit to the quarry, the stone was being loaded with a 5-cu. yd. Bucyrus-Erie 120B electric shovel. Four other shovels including two 3½-cu. yd. 1201 Limas, a 2-cu. yd. 802 Lima, and a



First reduction in the sand is done in this impactor. The plant turns about 165 t.p.h. of manufactured sand.

Northwest crane, were also at work in other sections of the quarry. One of the Lima machines, fitted with a crane boom, was slugging away with a 5000-lb. dropball reducing oversize boulders to convenient crusher size.

Three 12-cu. yd. rear dump Euclids and one 25-cu. yd. Maxi-built side dump quarry truck carry the pit run stone from the 120B, a short distance to the primary crusher, an Allis-Chalmers 42-in. gyratory. About 650 tons of stone per hour is put through this machine. Crusher discharge is collected on a 42-in. belt and passed over a pair of triple-deck Simplicity vibrating screens operating in closed circuit with a 30-in. Allis-Chalmers secondary gyratory crusher. Minus 6-in. stone is conveyed to a stockpile holding about 100,000 tons of aggregate.

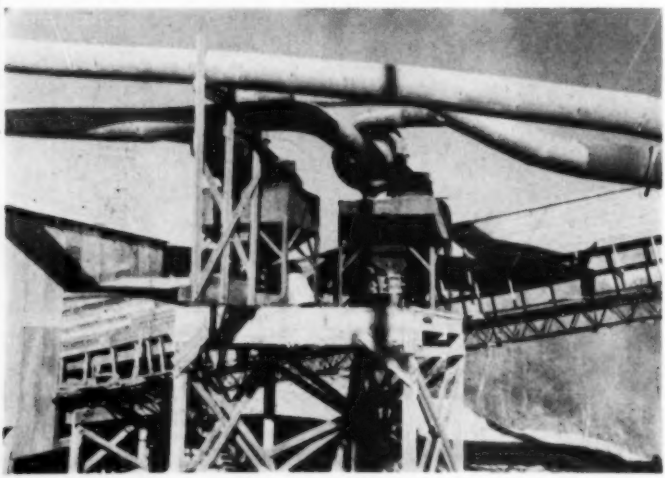
Quarry to Dam Site

One of the most interesting features of the whole Bull Shoals construction project is the 7-mile belt conveyor system which carries the stone from the quarry to the processing plant alongside the dam site. Because of the unusually rough terrain, the considerable distance between dam and quarry, and the initial cost of building plus the cost of maintaining an adequate road, this belt system is considered more convenient and economical than any other haulage method. Costs including amortization are somewhere in the neighborhood of 7 cents per ton mile.

The belt line is broken up into 21 flights varying from 600 to 2,800 ft. long. Each flight is powered by a 100-hp. electric motor (mostly Westinghouse and G. E.) effecting a belt speed of 525 f.p.m. An elaborate control system permits the watchman to stop any single flight, which automatically stops all flights behind it. The compounded rubber and cotton fabric belting (87,210 ft. in the whole plant including this belt system) was supplied by Goodyear Tire and Rubber Company. Most of the 14,000 belt idlers used in the system are Hewitt-Robins.

Aggregate Plant

The 7-mile conveyor belt delivers 650 tons of stone per hour to a 10,000 ton surge pile—adequate insurance against a prolonged breakdown at the quarry. Stone is reclaimed from the surge pile through a series of solenoid-controlled, air-operated gates over a 36-in. below-grade reclaiming belt conveyor. The



Four of these dust collectors are installed at strategic locations in the sand circuit.

Here is one of the three air separators used in the sand circuit.

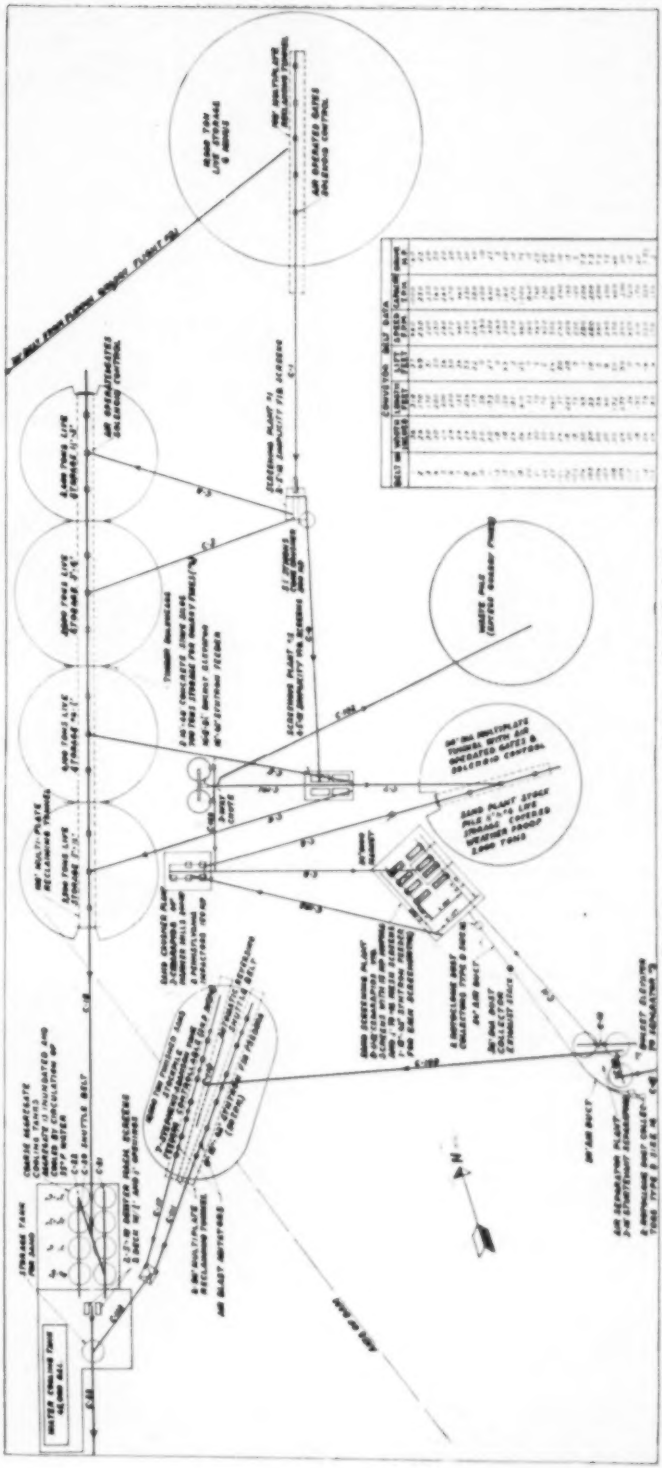
conveyor tunnel beneath the pile is constructed of Armco 108-in. diameter Multiplate.

At the first screening tower the stone stream is separated and stockpiled into 1½-in. to 3-in. material and 3-in. to 6-in. Two 5- by 12-ft. Simplicity screens handle the separation. When the stockpiles containing the two sizes separated here are built up to capacity (see drawing for stock pile size) the excess is by-passed to a 5½-ft. Symons cone crusher. The crusher product with the minus 1½-in. material is sent to the second screening house, where two other aggregate sizes, ¾-in. to 1½-in. and No. 4 mesh to ¾-in., are separated. In addition, minus No. 4 mesh to dust is taken out of the circuit here and sent to two 16- by 40-ft. concrete stave silos with a combined storage capacity of 700 tons. Excess ¾-in. to 1½-in. is shunted to a second pile to be used for raw feed to the sand plant. This arrangement permits operation of the sand plant independent of the aggregate plant. Four 5- by 12-ft. Simplicity screens make these separations. All of the aggregate storage piles are centered over a common reclaiming tunnel belt conveyor.

The fineness modulus written into the sand specifications require that the F.M. for the manufactured sand fall between 2.40 and 2.90. The tough part of the specification to meet, however, is the requirement that the F.M. cannot vary more than 0.10 from the average fineness of all samples tested during any immediate 30 day period. A typical sieve analysis of the sand follows:

Sieve Size	% Retained by Weight
No. 4	0-5
No. 8	5-15
No. 16	10-20
No. 30	15-25
No. 50	15-25
No. 100	10-20
No. 200	6-10
Minus 200	3-7

The sand plant is geared to turn out about 165 t.p.h. Raw material, ¾-in. to 1½-in., is reclaimed from the raw surge pile and fed into two Pennsylvania Impactors. (Two additional impactors of the same make are now being installed.) The impactor product is conveyed to the sand screen house where eight Cedarapids vibrating screens in two rows of four each size the material. Each screen is equipped with an 18- by 42-in. Syntron vibrating feeder which controls the rate of feed (about 50 t.p.h.). All oversize off this battery of screens is returned to



Flow sheet of aggregate production at Bull Shoals Dam. (Courtesy of Corps Engineers, U. S. Army)

the crushing house, where it is distributed to three Cedarapids 40- by 33-in. hammermills. Material collected in the concrete silos mentioned above is sent directly to the screen house, bypassing the impactors. In rainy seasons, however, or during those periods when raw feed is unusually dirty, this silo stone is wasted.

The material passing through the battery of eight Cedarapids screens is collected on a common belt and classified in a series of three Sturtevant 16-ft. air separators. Excessive fines are removed at this station. Because this sand plant generates large quantities of dust (the government specified a dry system), four American Air Filter Rotoclones are installed at strategic locations. These are tapped once daily and the fines wasted.

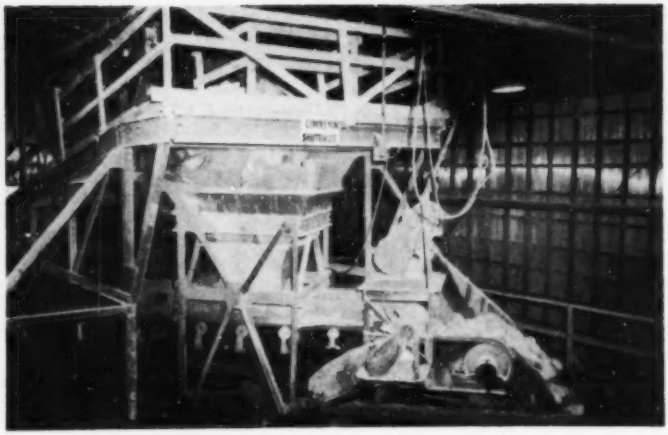
The finished sand product from the air separators is collected on a 36-in. wide belt leading to an automatic reversing shuttle belt. About 10,000 tons are held in the finished stockpile. It is wet down periodically to prevent loss, as well as to keep the area free from dust. Two 96-in. Armco Multiplate tunnels were built beneath this finished sand stockpile in order to speed up reclaiming operations (about 200 to 250 t.p.h.) and to provide more uniform blending. One of these tunnels is equipped with seven Stephens-Adamson rotary van feeders, while the other has six Syntron vibrating feeders.

Concrete Plant

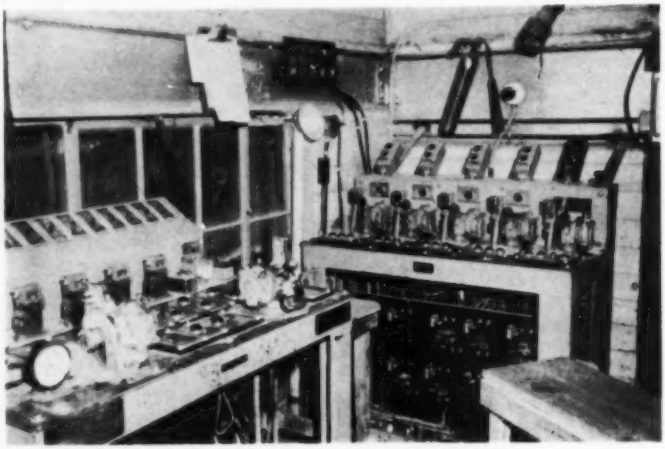
As in many of the present-day dam projects, the government has specified in its contract with the contractor that the placing temperature of the wet concrete be held down within certain rather rigid limits. This specification was written in an effort to eliminate temperature cracks often found in large monolithic concrete sections. At Bull Shoals the contract provides that the concrete be placed at temperatures between 50 and 65 deg. F. regardless of the ambient temperature. During the hot season this means refrigeration.

At Bull Shoals the temperature of the concrete is kept down by immersing the coarse aggregates in 35 deg. F. water. Eight huge tanks are provided for this purpose. While four are being filled, the other four are being emptied. The refrigerating plant has a daily cooling capacity

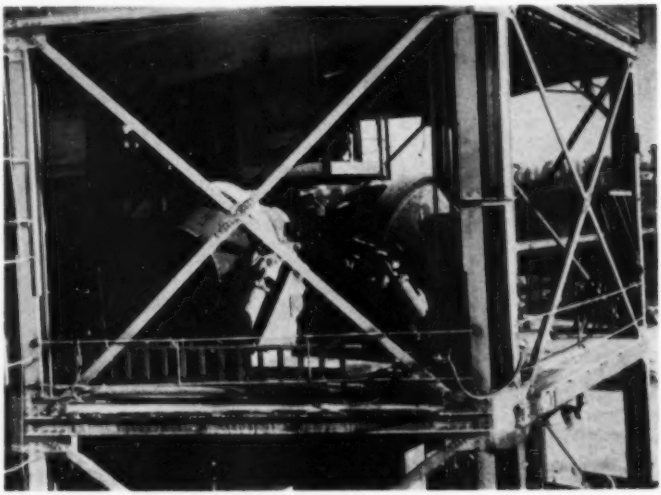
(*Continued on page 78*)



Coarse aggregates are placed in huge vats for cooling by means of this shuttle conveyor.



Inside view of the concrete plant, showing a few of the many and elaborate controls.



These mixers will handle much of the 2,500,000 cu. yds. of concrete going into Bull Shoals dam. They already have been used at Friant, Dale Hollow, and Conchas Dams.

WASHINGTON NEWS LETTER

By S. HERBERT UNTERBERGER

WASHINGTON has more economists per capita than any city in the world. No doubt, that is why so much time and effort is spent here in looking into the economic "crystal ball." Of course, the economists are encouraged by the politicians. Those who are in power want to know whether economic prosperity will continue. They know that history demonstrates that it is very rare for the party in power to lose during a prosperous period. Those who are out of power are looking for the signs of a downturn, their best opportunity to take over.

The post-war prosperity was characterized by a high level of consumer spending plus a high level of business spending, particularly for capital goods. If this fortunate combination were to continue, prosperity would be assured. It is no wonder therefore that the government—and some private organizations, too—make surveys to forecast the probable future rate of spending.

Consumer Spending

As for consumer spending the Board of Governors of the Federal Reserve System sponsors an Annual Survey of Consumer Finances. A preliminary summary of the 1950 Survey has just been released. Here are their conclusions:

"1. Consumer plans to purchase houses, automobiles, and other selected durable goods in 1950 appear, on the whole, to be at least equal in early 1950 to those expressed at the beginning of 1949 and again in midsummer.

"2. Personal income expectations for 1950 were generally as optimistic as a year earlier despite some increased frequency of lower current incomes than a year ago.

"3. With regard to the general business outlook for the next 12 months, consumers evidenced greater uncertainty than at the beginning of 1949. However, they were somewhat more optimistic than last July following a series of business adjustments in the first half of the year.

"4. A belief that prices will fall in the coming year is widely held, especially with regard to automobiles and large household items, but the number expressing this belief is down sharply from six months and a year ago."

Because of its close relation with the construction industry, members of the pit and quarry industries will probably be especially interested in consumers' plans to buy houses. On this point the Survey finds:

"Consumer plans to buy houses in the current year—newly-built and existing houses combined — were slightly larger in early 1950 than in early 1949. Plans to purchase newly-constructed homes were the same or somewhat greater than in 1949, while there was no change or a slight decline in reported intentions to purchase existing homes.

"Preliminary survey data justify an estimate of over 1 million consumers having 'definite' plans to buy homes in 1950. Compared with a year ago, a somewhat stronger demand was evident for units priced below $10,000 while little change in purchasing intentions was noted for homes priced above this level.

"About as many consumers indicated intentions to buy new homes in 1951 as reported such intentions for 1950. Purchase plans for 1951 were more frequently uncertain than those pertaining to 1950, reflecting in part at least the remoteness of the time period."

Business Expectations

Another survey made by the U. S. Department of Commerce used quite a different source but came out with almost the same conclusion. Instead of asking consumers how much they expected to spend, the Department asked businessmen how much they expected to sell.

Manufacturers expected to sell 2 percent more in 1950 than in 1949. Electric and gas utilities expected to sell 6 percent more. On the other hand, tradesmen expected to sell 2 percent less while transportation concerns other than railroads expected to sell 3 percent less. Overall, the expectation is that sales will probably not fall below last year.

Business Spending

A very important factor determining our prosperity is the extent of business spending. Based on sales expectations, it appears likely that business will spend at least as much for goods and services in 1950 as it did in 1949.

However, business also spends for capital investment, and here the picture is not so rosy. A survey of anticipated plant and equipment expenditures for 1950 has just been completed. It was conducted jointly by the U. S. Department of Commerce and the Securities and Exchange Commission. The conclusions of this survey are as follows:

"American business, exclusive of agriculture, plans another year of large capital expansion although the aggregate investment will be less than the high figures of the previous two years. Expenditures for the construction of new plants and the purchase of new equipment are scheduled at $16,100,000,000 during 1950. This is $2,000,000,000 less than in 1949.

"The declines are not expected to be the same for each industry. They are the greatest in railroads and other transportation, amounting to 31 and 35 percent respectively. They are least in gas and electric utilities, where a decline of only 6 percent is expected, and in manufacturing, where the decline is expected to be 7 percent.

"This downward adjustment in capital outlays is not due to any change in the current favorable market for goods, but stems rather from the gradual catching up on the backlog demand for plant and equipment carried over from the war."

The report gives three reasons for the slackened pace of investment:

1. Most companies reported as the principal reason for their declining capital investments that they had completed their current capital investment program.

2. Although investment in capital goods has declined, it is high enough to maintain our facilities and provide for normal expansion.

3. The number of new firms—large customers for capital goods—has been declining ever since 1946.

A private survey made by McGraw-Hill Publishing Company showed about the same results. That survey shows an expected decline of 13 percent in capital investment between 1949 and 1950, as compared with an 11 percent decline shown by the government survey.

The construction industry will fare even worse than other suppliers of capital goods. Of the reduced amount of capital expenditures in 1950, only 25 percent will go into new plants. In previous years the expenditures were greater, with 27 percent devoted to new plants in 1949 and 31 percent in 1948.

Portland Cement Association's New Laboratories

By WILLIAM M. AVERY

A general view of the Portland Cement Association's new $3,000,000 research and development laboratories at Skokie, Ill.

Four members of the applied research section at P.C.A.'s new laboratories are here shown operating a quartet of physical testing machines which exert maximum pressure ranging from 20,000 to 330,000 lbs.

KEY figures in the portland cement industry, engineers, architects, builders, and editors from all over the nation will converge on a small suburban community near Chicago early in June to take part in the impressive ceremonies which will mark the formal dedication of the new Research and Development Laboratories of the Portland Cement Association. The occasion, as we interpret it, marks an important milestone not just in the history of a single basic industry, but in the long-term progress of the art of construction. Providing unexcelled and virtually unlimited facilities for research on cement and concrete, the new laboratories will implement a vast expansion of the cement industry's sustained efforts in the fields of research and development.

Built at a cost of $3,000,000, facilities at Skokie, Illinois will implement a vast expansion of research and development

The laboratory group, consisting of two architectural concrete buildings joined by a covered walkway, are located in the suburb of Skokie, Ill., 16 miles northwest of the Chicago "Loop". Located on a 15-acre plot of ground which adjoins a Cook County forest preserve, the buildings provide a usable floor area of about 98,000 sq. ft. Most of this floor space (some 80,000 sq. ft.) is contained in a two-story structure with penthouse and basement which houses the principal laboratories and offices, an auditorium, a technical library, conference and reading rooms, and a cafeteria. A one-story basementless structure in the rear of the main building houses industrial processing laboratories, facilities for aggregate treatment and soil-cement testing, a wood shop, and a cement storage room. This building is equipped for processing operations which require high temperatures and relatively heavy machinery and is provided with overhead cranes, and a dust-collecting system.

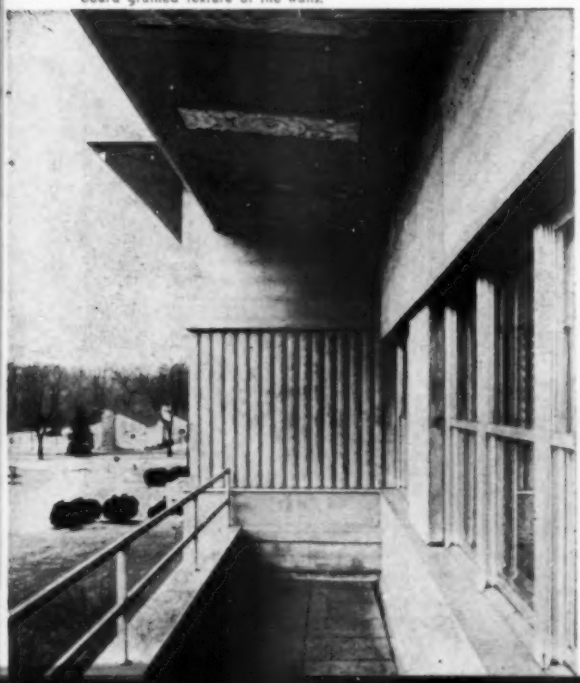
The central wing of the E-shaped main building is enlarged at the rear (or north) end to accommodate a 1,000,000-lb. compression testing machine, and an overhead crane for handling large, heavy specimens. This wing is connected to the east wing at first and second floor levels, and to the west wing at the second floor level only, forming two courts which are landscaped. The west wing of the main structure is connected with the auxiliary building by a walkway which is protected by a concrete slab canopy.

In both structures the decorative and structural qualities of concrete have been fully utilized. The large window openings are separated by reeded architectural concrete piers, cast in plaster waste molds. In the main building sharp horizontal lines were produced by setting the piers back 3 in. from the 11-in. exterior walls and spandrel beams. Precast ornamental panels, set into the underside of overhanging roof decks and into the side walls of the east and west wings, add architectural interest. Exposed metal work is practically all aluminum.

Attractive grain markings were left on exterior concrete walls by using center-matched Oregon fir ply-

The telephone switchboard enclosure in the northwest corner of the lobby of the main building is faced with precast terrazzo of the same colors as the stairway—light green and gray.

This picture, taken on the balcony outside the rooms in the east wing of the main building, shows clearly how the reeded architectural concrete piers separating window openings contrast sharply with the board grained texture of the walls.



A view of the main court taken from the general files room on the second floor of the main building. The overhead passageway leads from a balcony in the physical training room on the right to the west wing of the second floor on the left.

wood forms. After the forms were stripped, the surfaces were brushed with a clean-down grout which contained some white portland cement to lighten the color. The grout was worked in with a cork float, and the excess was removed by rubbing the surface with burlap.

In the auxiliary building and in the basement of the main building most of the interior walls are exposed monolithic concrete. Partitions in the main structure are predominantly of concrete masonry units, some left unpainted and others finished in suitable colors. The excellent decorative effects gained with painted masonry units in the office, lobby, auditorium and corridor walls eloquently urge the wider use of such materials in all types of construction. Colored cast stone is used liberally and effectively in the lobby and front stairway, and in toilet and shower rooms.

Control joints were provided at least every 22 ft. in all walls, both interior and exterior. Rustication lines, provided for this purpose on exterior walls, achieved an excellent decorative effect, and also permitted the use of form panels which could be readily removed. The lines were spaced to permit the forming of continuous vertical joints from top to bottom.

In the main building control joints in the interior walls were placed at the sides of columns in order to separate the columns from the walls. To bring the columns flush with the adjoining masonry walls, block facing was anchored to the columns. Ceiling anchorages were used to give lateral stability to the concrete masonry walls.

Some 90,000 concrete masonry units, mostly 4- by 8- by 16-in., were used in the entire project, employing nearly every available type of aggregate. These, as well as the aggregates used in all cast-in-place concrete, were selected from locally available materials with good service records. In all phases of the work a concerted effort was made to achieve only such standards of quality as could be duplicated on any project in the field.

Built at a cost of approximately $3,000,000, the new laboratories replace the association's former research facilities located at the general headquarters building in Chicago. They provide about four times the space of the older laboratories, which at the time of their construction ranked among the best equipped materials research laboratories in the world.

The new laboratories represent a major step in the association's policy of expansion in the important fields of research and development. Since research laboratories were first established in Chicago in 1916, the association has been closely identified with most of the major contributions to cement and concrete technology. Research and development work have resulted in improved facilities for transportation, in longer life for concrete structures of every description, and in important savings in construction costs.

The justly famous water-cement ratio theory of proportioning concrete, probably the most important single contribution to concrete technology, was a product of the first laboratories. Soil cement, air entrainment, pressure grouting, and sound principles of pavement design are just a few of the many outstanding developments which have come about, in whole or in part, as a result of P.C.A. activities in the research field.

Since most of our readers will be unable to visit the laboratories at Skokie for a personal inspection, we will here undertake to describe briefly some of the major points of interest visitors will see on the inspection tours which will be a feature of the dedication ceremonies. The broad function of various units will also be covered briefly, but it should be noted that there are many more specialized laboratories than are covered in this report.

In the auxiliary building (see floor plan), the cement and materials storage room is used to store the thousands of sealed samples of portland cements, aggregates, and other materials used in the association's long-time study of cement performance in concrete. When this study (the first of its kind ever undertaken) was launched in 1940, more than 10,000 test specimens were included in the investigation, and many have been added since. The performance of the various cements and aggregates in structures of every description is being observed under the widely varying conditions of climate, soil, and water found in the United States. The stored samples will enable investigators to examine the particular cement and aggregate used in concrete specimens which may be studied a century or more from now.

Frank T. Sheets, nationally known highway engineer, president of P.C.A. since September, 1937.

Dr. A. Allan Bates, vice-president for research and development since 1946, outstanding scientist and chemical engineer.

H. F. Gonnerman, assistant to the vice-president for research and development, has been with P.C.A. since 1922.

The adjacent industrial processes laboratory is used for the erection and operation of pilot plants with which to approximate the conditions existing in certain manufacturing and producing operations. Here the materials used in the manufacture of various types of lightweight concrete aggregate can be processed under approximately the same conditions that exist in commercial plants.

There is also a pilot concrete block plant equipped for studying the effect of different steam curing and drying procedures on the physical properties of concrete masonry units. The equipment includes a high pressure steam autoclave and a heated moist air kiln operable at temperatures up to 212 deg. F.

In the aggregate storage and processing room fine and coarse aggregates from many sources are stored, processed, and graded for laboratory use. The materials are dried by means of radiant heating coils embedded in the floors, and there are two multiple-deck vibrating screens for separating the fine and coarse aggregates into desired size ranges.

The nearby soil processing laboratory is equipped for drying and screening materials used in soil cement, cement-treated base pavements, shore erosion control, and irrigation ditch linings. Such materials are later routed to the transportation development laboratory and the soil mechanics laboratory, both located in the main building, where major attention is focussed on the use of cement and concrete for many types of transportation, and for water and sewerage systems. In these two laboratories every facility is available for testing soils, sands, gravels, and other materials used in soil cements and cement-treated bases. The equipment includes several devices used in determining the ideal moisture content for compacting soils and soil-cement mixtures, as well as for determining the gradation of materials, and molding test specimens.

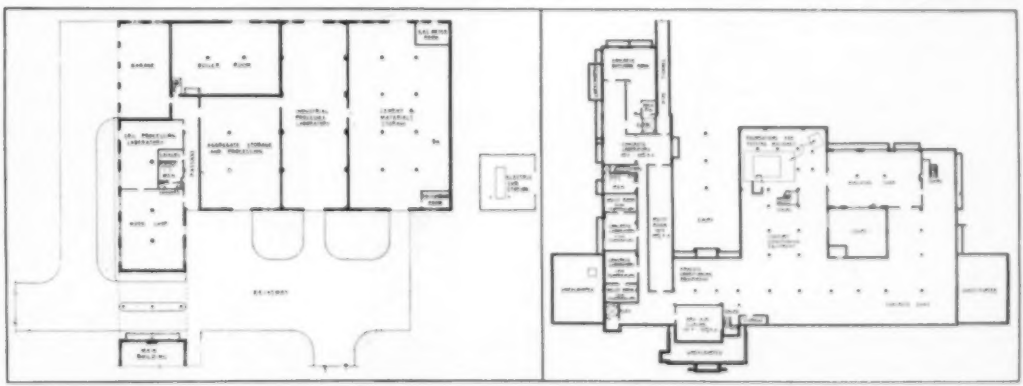
One of the executive offices in the west wing of the main building.

In the soil mechanics laboratory this line of investigation is carried further by means of studies of the actual performance of soils and soil mixtures under loads. Stability and shearing strength are measured with a triaxial compression testing machine. A controlled atmosphere room serves as a conditioning room for regulating the moisture content of soil samples, and for carrying out special tests on paving materials.

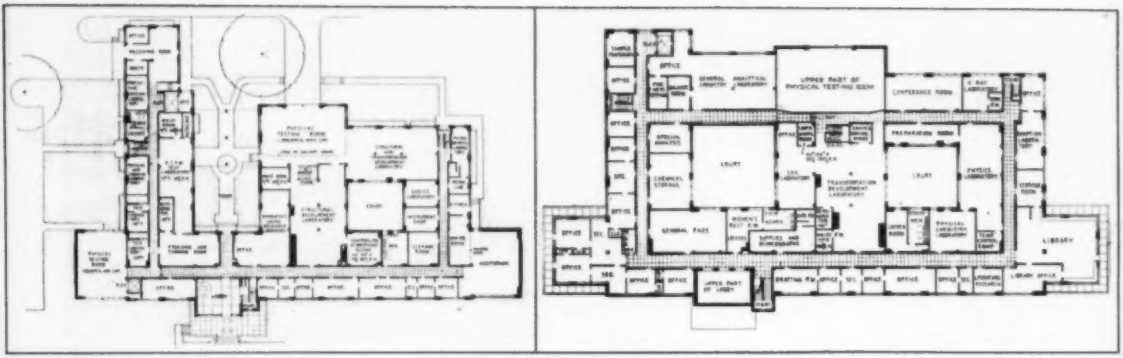
In the concrete batching room, located in the basement of the main building, aggregates and cement are accurately weighed in preparation for their use in making up specimens. Batches are prepared the day before the specimens are made, and moved to the adjoining concrete laboratory to attain the desired temperature. This laboratory is kept at a constant temperature of 73 deg. F., and relative humidity of 50 percent. Adjoining the concrete laboratory is an 80-ft.-long moist room in which specimens are cured at 73 deg. F. and 100 percent relative humidity.

In the smaller of two physical testing rooms on the first floor of the main building are the various machines for determining the tensile, bending, and compressive strengths of medium-sized mortar and concrete specimens. Two 75,000-lb. machines are used for testing small mortar specimens in bendings and compression, and concrete beams in bending. The compressive strength of various concrete specimens is determined with a larger, 330,000-lb. machine. Other machines are available for testing mortar briquets, concrete, and steel in tension, and for determining the bond strength between concrete and steel reinforcing bars.

The larger of the two physical testing rooms houses the most dramatic single piece of equipment in the entire laboratory—the 1,000,000-lb.-capacity compression testing machine. The room, located in the



Left: Floor plan, auxiliary building; right: basement floor plan, main building.



Left: First floor plan, main building; right: second floor plan, main building.

rear of the central wing, is three stories high to accommodate the machine and the 15-ton overhead electric crane for handling large specimens.

This specially designed machine will take specimens 30 ft. long, 10 ft. wide, and 15 ft. high. It will be used for a wide range of investigations, including the testing of wide sections of pavement slabs. Huge doors in one side of the room make it possible to bring in large specimens formed and cast outside the building.

Adjoining the large physical testing room is the structural and transportation development laboratory in which will be made many of the concrete pavement sections, roof trusses, beams, bridge sections, prestressed concrete structural members, and floor panels to be tested in the 1,000,000-lb. compression machine. Clays, shales, and other materials are tested in this room in connection with their use in lightweight aggregates.

Studies of durability under various exposure conditions are carried on in several rooms of the new laboratories. Specimens can be exposed to alternate cycles of freezing—thawing, cooling—heating, or soaking—drying, and to moist heat, dry heat, and severe cold. In many investigations the effects of years of exposure can be produced in a few weeks, thus materially expediting the association's sustained search for ways to improve the performance of concrete in all types of exposure.

In the cement and mortar testing laboratory durability specimens are subjected to non-destructive tests to determine changes in weight, length, and elasticity. Changes within the concrete are determined by measuring with ultrasonic equipment the speed of transmission of compression waves before, during, and after durability tests.

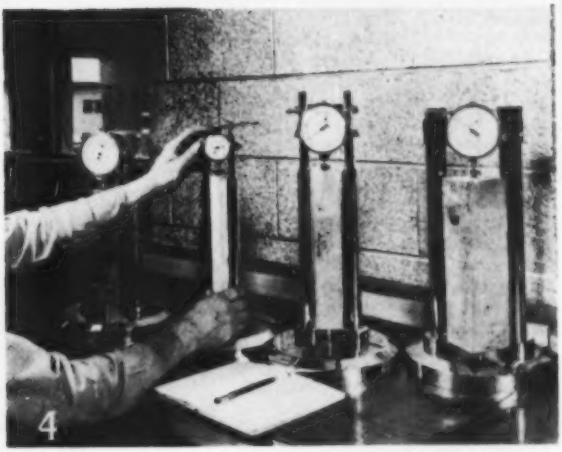
The general analytical chemistry laboratory, located on the second floor of the main building, is fully equipped for making precise analyses of portland cements and the raw materials used in producing them, as well as aggregates and other materials used in concrete. Here are determined such properties as the specific surface and fineness of cement, and the specific gravity, absorption and other characteristics of the aggregates used in various research projects.

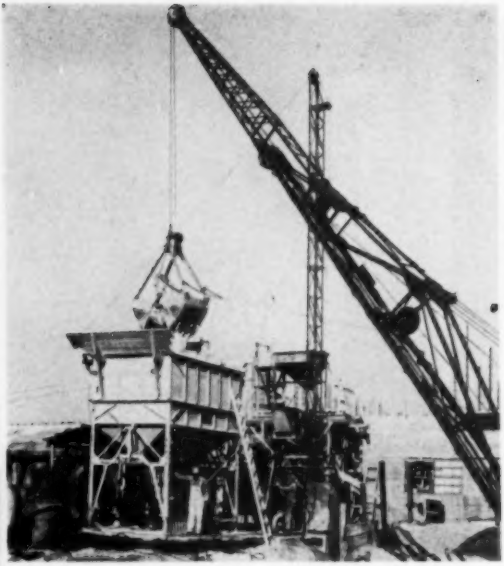
1. A laboratory technician checks several dozen concrete specimens after subjecting them to alternate freezing-and-thawing tests.
2. Another staff member briefly visits the cold room, where temperatures drop to minus 20 deg. F. for "weather" tests on concrete.
3. Two technicians in applied research checking test specimens for reactions in freezing-and-thawing tests.
4. Here a technician is operating a series of four extensometers to determine differences in expansion and contraction.
5. The turbidimeter aids engineers to calculate particle size distribution in portland cement below even the micron.
6. This device provides for a sonic vibration method of testing concrete specimens.

The stairway leading from the lobby to the second floor of the main building.

One of the precast ornamental panels, set into under side of overhanging roof decks.

An interesting design was carried out in this reinforced concrete stairway.





A view of the small mixing plant, showing the cement storage shed, elevated aggregate bins and scales, ½-cu. yd. mixer, and portable steel hoist.

One of the two types of hot air blowers used during cold weather construction. Both types contained a burner and a motor-driven fan.

In the physics laboratory and the adjoining physical chemistry laboratory attention is focussed mainly on studies of cement pastes. Here some of the most elaborate and precise equipment found in any laboratory is used to determine such characteristics of cement paste as permeability to water, thermal volume change, and density.

An important unit of the new laboratories is the literature research and library group, established early this year. Literature research of two general types will be carried on: surveys to provide interested individuals with a quick literature background on research projects; and comprehensive, critical reviews requiring a year or more of intensive work.

The technical library, occupying a pleasant, well-lighted corner room on the second floor, serves as a reference center for all sections of the laboratory. Vast quantities of indexed material speed the handling of the thousands of inquiries received from member companies and from users of portland cement throughout the United States and Canada. Special services rendered by the library staff include translations of foreign-language articles, bibliographical research, preparation of abstracts, and the maintenance of ready-reference and clipping files of published material pertaining to portland cement and concrete. Although created primarily to serve the resarch and development laboratories, the library is being developed into a national center for information on cement and related materials. Its facilities, in line with the association's fixed policy of rendering the maximum public service, are available to anyone with a *bona fide* interest in the field.

Below the library, on the first floor, there is an attractive auditorium for motion picture showings, demonstrations, conferences, technical meetings and similar gatherings. It will seat about 150 persons. The walls consist of 8- by 16-in. masonry units laid with continuous horizontal and vertical joints, achieving one of the most attractive effects of its kind we have seen. A dining room and kitchen adjoining the auditorium provides cafeteria service for members of the staff.

Considerable planning went into problems of locating and decorating the executive and staff offices in the main building. Secretarial offices are located adjacent to the various executive offices for convenience, while members of the staff have offices close to the laboratories with which they are primarily concerned. The majority of the offices are located on the outside of corridors to take maximum advantage of natural light. The walls consist of sound absorbent concrete masonry units painted in attractive pastel shades.

Although in the construction of the laboratories no unusual demands or restrictions were placed on the contractor, full advantage was taken of the opportunity to apply field practices and principles long advocated by the association, and to observe new materials and equipment under actual field conditions. Relative to concreting practices, the buildings are said to be among the most thoroughly documented structures in the country. By taking full advantage of the association's own testing facilities, compression tests were made on one set of three specimens taken from the forms for each 15 cu. yds. of concrete placed, as against the specification requirement of one set for each 400 cu. yds. placed.

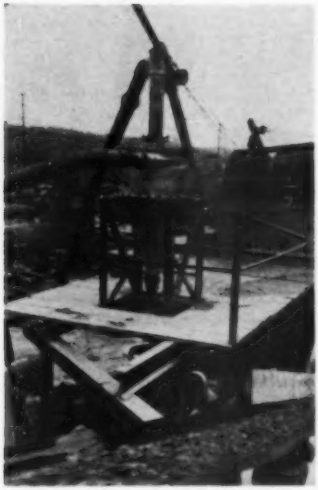
Most of the 8350 cu. yds. of concrete used in the project contained 5.6 sacks of cement per cu. yd. Two mixing plants were used—a small unit for initial warm-weather work on the auxiliary building, and a larger cold-weather plant located near the site of the main building. The plants were so located that their bins could be charged by means of a single clam-shell crane from the same storage piles. The latter were located on a 5-in. lean concrete slab containing imbedded steam pipes, providing a dry storage area for aggregates before they were placed in the bins, which were also supplied with live steam.

The principal equipment at the larger plant consisted of a 150-ton bin and scales, a device for measuring water, two 100-hp. boilers for steam and water, a horizontal drum mixer of 1-cu. yd. capacity, and a hoist tower. One of the boilers was used to supply live steam to the bins and the storage slab, and the other was used to keep the temperature of the concrete during mixing close to 70-deg. F.

Two separate coarse aggregate piles were maintained to permit adequate control of gradation—one consisting of ¼- to ¾-in. material, and the other of ¾- to 1½-in. material. Moisture determination tests were made at frequent intervals, and

(*Continued on page* 94)

New Type of Cone Separator Extracts Desired Fine Sand From Tailings Once Wasted



• Biggest little piece of equipment in the Caudell & Johnson plant is this new type of separating cone. It extracts 70 tons of fine sand from classifier overflow daily. Formerly the valuable fine fraction was lost in waste.

another ON THE SPOT report

MANY sand-and-gravel deposits either do not contain sufficient amounts of the extremely fine fraction currently demanded in sand specifications, or the desired fine material is in large part lost in the conventional washing and classification processes.

Caudell & Johnson, leading producers in the San Diego, Calif., area had long been confronted with this problem. Their main plant is in Mission Valley, near the northerly city limits. Productive capacity here is in the neighborhood of 300 tons per hr., and, while tests proved that there were sufficient quantities of sound minus 100-mesh sand in the deposit, much of this was being flumed away to waste during the intensive washing process required to eliminate the excessive amounts of clay and colloidal matter.

All fines are taken out by a sand jacket on the primary scalping trommel and flumed to a series of wheeled scoops for washing and dewatering. The slimes overflowing the weirs had previously been wasted and, while the waste consisted mainly of deleterious matter, it also contained considerable valuable fine sand.

Recently Caudell & Johnson took the problem to the Cottrell Engineering Company of Los Angeles. From its long experience in the mining field, this organization designed and built a 6-in. cone separator of a new type which it installed in pilot-plant service at the Caudell & Johnson operations. Results were so uniformly good that a larger 25-in.-diameter unit was built and installed permanently to handle the entire overflow from the sand wheels.

According to Arthur S. Johnson of the San Diego concern, this device is recovering as much as 70 tons of fine, clean sand from the overflow per day . . . sufficient in amount to enable its sand output to meet the most exacting of present-day specifications for concrete sand. A 6-in. centrifugal pump delivers these tailings to the inlet of the cone at high velocity, the fine sand being recovered from the lower opening after swirling through the separating chamber. The dirty water, clay, etc., rise through the upper pipe for discharge to the line leading to the settling pond. Concentration is controlled by adjusting the overflow-pipe height of the upward-flowing hydraulic water. Typical analyses of the fine-sand recovery are given below, Test No. 1 being from samples obtained with the overflow pipe set as high as possible, while Test No. 2 was with the setting about 8 in. from the bottom outlet:

Percent Passing:	No. 1 Test (%)	No. 2 Test (%)
No. 30 Screen	100	100
No. 50 Screen	96.0	92.5
No. 100 Screen	53.5	39.0
No. 200 Screen	17.8	7.4

The cone was lined with abrasion-resistant steel, with the idea in mind that a rubber lining might be substituted in case of excessive wear. Recent examination after several weeks' continuous service has, however, indicated surprising little wear, due probably to the design of the unit itself.

Feed, discharge, and overflow lines from the separator cone consist of 6-in. rubber hoses. The fine sand recovered is deposited on the sand stacker belt leading from the sand wheels for uniform blending in the storage piles.

Since installing the Cottrell separating cone, Caudell & Johnson have not only solved the problem of the recovery of fines as a corrective measure, but also added a new source of income. The increase of 70 tons of product daily, at a commercial value of $1.35 per ton f.o.b. plant, paid for the cost of the installation (less pump and motor which were on hand at the plant) in about two weeks!

Circular No. 156, entitled *Acid Etching in the study of Limestones and Dolomites*, prepared by J. E. Lamar, has been issued by the Illinois State Geological Survey. The 46-page brochure contains many photographs which indicate the results of etching different types of limestone with hydrochloric acid, show the textures of various types, and depict interesting features.

• A general view of the Caudell & Johnson sand-and-gravel operation at San Diego, Calif.

$11,000,000 Dredging Job At Canyon Ferry Dam

By HARRY F. UTLEY

another ON THE SPOT report

ON Canyon Ferry Dam, a $11,896,455 Bureau of Reclamation project in the headwaters of the Missouri River near Helena, Mont., construction is being made easier and speeded up considerably by a huge bucket-ladder dredge which is doing a most remarkable and unusual job.

The dredge, owned by the Perry & Schroeder Mining Company, and built by the Yuba Manufacturing Company of San Francisco, started work in the summer of 1949, digging out the common excavation for the construction area before unwatering the site, and using much of the excavated material to build the cofferdams. This year it is engaged in the underwater excavation and stock-piling of the concrete aggregates in the river about a mile above the dam site.

The prime contractor for the job is Canyon Constructors, a joint venture sponsored by the J. C. Maguire Co. of Los Angeles. It was largely because of the vision of J. C. Maguire and his openmindedness in the use of new tools and new materials that the decision was made to utilize the big dredge, built originally for the mining of gold, for much of the subaqueous work.

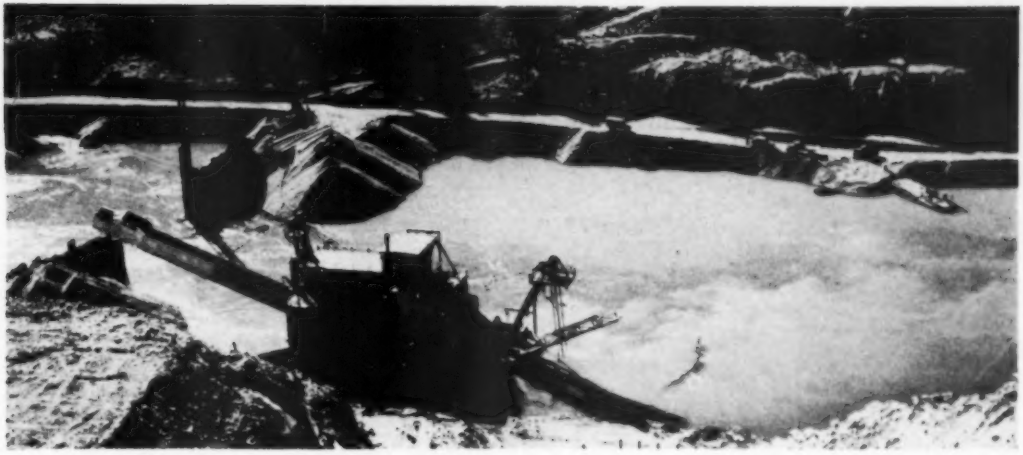
Canyon Ferry Dam will be a concrete gravity structure 212 ft. high, of which 172 ft. will be above stream bed. It will be 1,000 ft. long at the crest and will require a total of nearly 500,000 cu. yds. of concrete for the dam itself and appurtenant structures. Completion is scheduled for some time in 1953.

As one might well realize, to justify its considerable capital cost (about $500,000), also its "in-and-out" cost, a bucket-ladder type of dredge to be used on ordinary excavation work must be able to do some part of the job better, or at less cost, than draglines or similar less expensive equipment; or the job must be of sufficient size to amortize these costs over a greater number of cubic yards of material handled.

Although the Perry & Schroeder dredge was fortunately already located close to the job so as to save on the "in-and-out" costs, both phases of the work at Canyon Ferry Dam clearly come under the first category, since only a relatively small amount of excavation, about 1,000,000 yards, is involved.

In the first phase—excavation of the site—the dredge was able to dig the "common" material down to bedrock and place it directly back

• An aerial view of the Canyon Ferry Dam area, near Helena, Mont., showing the old dam (background), the gravel islands, the site of the new dam (center), with the concrete mixing plant and the aggregate plant nearby.



• A view looking from the right bank of the "Keyway" to the left bank. The dredge was at the time (November, 1949) backfilling the right upper coffer dam abutment before the diversion of the river.

to build the cofferdams. Two birds were thus killed with one stone. The cofferdams were built by the same operation that dug the "hole", without the cost of rehandling. Thus, the hauling in of an equivalent amount of material from some outside source to build the cofferdams was saved, and the disposal of the excavated material from the site after the river diversion had been complete was avoided. In addition, a time factor was greatly in favor of using the dredge. Since a major part of the excavation had already been completed by the time the river was diverted and the hole unwatered, the progress of the entire job was advanced by that much!

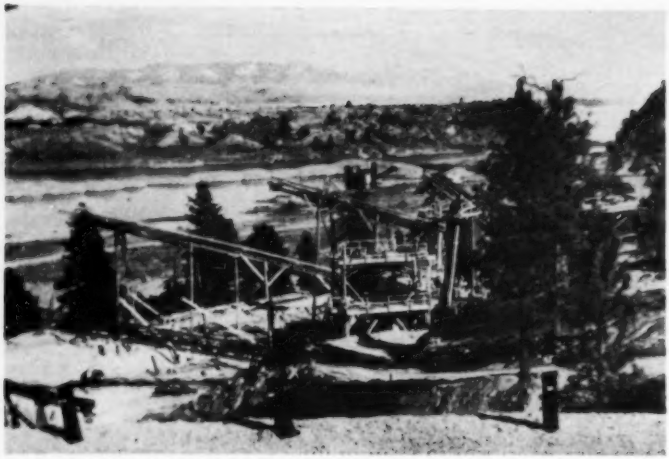
In the second phase of the dredge job at Canyon Ferry—the recovery of concrete aggregates from under water from islands in the river—no attempt is being made aboard the dredge to reduce oversize, or to screen the material into the five sizes required. This will be done with a conventional type of sand-and-gravel processing plant on shore. The advantage in favor of the dredge in this case lies entirely in its ability to dig and stockpile under adverse conditions. As a matter of fact, all screen plates were first removed from the 6- by 45-ft. trommel of the dredge and were replaced with blank sections, the trommel functioning merely as a scrubber to remove deleterious matter and then as a feeder to the stacking conveyor which builds the stockpiles.

The Yuba dredge has a 50- by 100-ft. demountable steel pontoon hull, two 55-ft. steel stern spuds, a 30-in. by 110-ft. stacker boom, and a 100-ton bucket line and ladder. A cable brings in electric power at 4,000 volts, which is stepped down to 440 volts on the dredge for driving the motors. The digging motor is 125 hp., with 30-hp. motors on the trommel, stacker, and winches. The endless bucket line carries 94 manganese-steel buckets each of 6½-cu. yd. capacity. It will dig about 48 ft. below the surface of the water.

The conditions which justified the use of the bucket-ladder dredge for the recovery of concrete aggregates at Canyon Ferry were largely concerned with the terrain at the sand-and-gravel deposit. The accompanying aerial photograph shows the site of the dam and the surrounding country. In the distance is seen the old Canyon Ferry Dam and its lake, both of which will be flooded with 150 ft. of water when the new dam is completed. Below the old dam the widening of the river bottom and a scattering of islands in the river may be seen. This group of islands was found to contain the nearest deposit of good aggregates. The islands lay approximately at water level, but the top 6 ft. or so was silt and mud which had to be stripped and disposed of. Thus, even the stripping became an underwater job, since the cofferdamming and diversion of the river was to raise the water level at this point another 8 or 10 ft. a few months after the job began.

The use of a slack-line cableway was considered but the idea was quickly abandoned, since the over-water span of the cableway between head- and tail-towers would have been in the neighborhood of 3,000 ft. Too, the deposit is deficient in fine sand sizes (which are to be made up at the processing plant by grinding coarse material), and any loss of valuable sand from the drag bucket in the river current would have been costly. There is no loss of

• Unwatering the "hole" and cleaning out the bottom, April 20, 1950.



• Scene at the gravel preparation plant. The dredge and the stockpile are seen in the distance.

sand in digging with the bucket-ladder dredge.

Another method considered earlier was to build causeways out across the islands, so that trucks and draglines could run out over the deposit to strip and haul away 100,000 cu. yds. of overburden for disposal, and to dig and haul about 700,000 cu. yds. of aggregate to a raw stockpile on high ground, where it would be available for the life of the job. All this would have had to be completed before the cofferdams inundated the deposit. This would have been a herculean, hurry-up task requiring a tremendous amount of equipment. It would have called for immense draglines with very long booms to obtain sufficient excavating depth and digging radius. Furthermore, since the actual yield of the various sizes of aggregates could not be pre-determined, a considerable surplus would have to be dug to care for shortages. Once the deposit was flooded, it could not again be worked.

The use of the dredge, which was available after the cofferdam work was finished, was indicated. The machine has a reach of about 250 ft. from the face of the excavation at water line to the point of delivery. As previously noted, it can dig 48 ft. below water line and deliver at a level 40 ft. above water line. It has a capacity of about 2,000 cu. yds. per 8-hr. shift, or 6,000 cu. yds. for the adopted 3-shift operations.

As per plan, the dredge first stripped the 6-ft. layer of waste off the deposit. By stripping one course to the right and one to the left, an area 500 ft. wide (twice the reach of the dredge) was cleaned. Since this did not give sufficient width, a part of the material was rehandled and stripped back once more to provide a width of about 750 ft. The dredge then was able to dig the clean sand and gravel (from both right and left again) and build a large stockpile by casting toward the center of the stripped area, piling the aggregates 40 ft. above waterline. This stockpile, when finished, will be made U-shaped by running two causeways of clean material ashore as wings of the main pile. The supply can then be handled as needed by trucks and a small shovel over the three-year period of construction while the dredge, with its large capital investment, will have finished its work by July, 1950. A safe reserve of good aggregates lies below water level under the piles, and this can be recovered by ordinary dragline, should it be needed.

In the opinion of Owen H. Perry of the dredging firm, there are undoubtedly many jobs in this country where a bucket-ladder dredge could be used to advantage in underwater excavation or the recovery of aggregates. "But", says Mr. Perry, "like any other tool, it must be used intelligently by some one who understands its possibilities and limitations and, since construction men in general are not familiar with it, it has seldom been used for this purpose.

"Recently we figured another job of aggregate recovery where a great surplus of oversize material, as well as a surplus of fines, occurs in the deposit. It would be possible, with no serious change in the flow-sheet aboard our dredge, to reject these surpluses and return them to the pit back of the hull without further handling, and to deliver the desired material direct to railroad cars alongside.

"In addition, the recovery of gold and other valuable minerals can readily be made during the process if there is sufficient to be worthwhile, as there was at the Friant Dam and Shasta Dam aggregate deposits. Many of our river gravels also contain amounts of uranium or other radioactive sands that, while not present in commercial quantities, would pay well to save while the material is handled. On the Canyon Ferry job, gold is not present in large enough quantities to make its recovery worth the effort.

"Bucket-ladder dredges are built in many sizes, capacities, digging depths, length and position of delivery, etc., and should be readily adaptable to any underwater excavation job. . . ."

• The dredge (center background) stripping the gravel islands and stockpiling. About one-third of the U-shaped stockpile had been formed at this time.

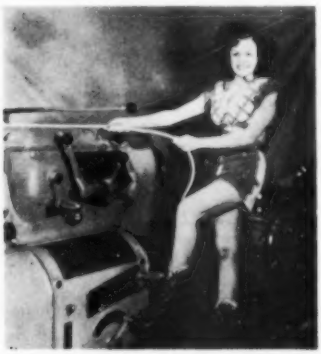
Screenings

by William M. Avery

WE had a vague sort of feeling that there was some auspicious occasion connected with the month of June, and sure enough, a squint at the files discloses that this is "Screenings" third birthday. For just a moment our reaction to the discovery was, "Well, so what?" But then it occurred to us that in only 27 years "Screenings" will be eligible for mention in the "30 Years Ago" column which appears elsewhere in your favorite journal. And a mere 30 years later "30 Years Ago" can quote from its quotation of 30 years before. At the tender age of three that's about as far as we care to pursue the matter.

Hop-a-long Susy

NOT long after *Advertising Age* ran an article urging the use of cheesecake in industrial ads, we received the accompaning photograph of one of the candidates for queen of the National Industrial



Advertisers Association Convention, which opens in Los Angeles late this month. We aren't sure that the items are related in any way, but we're reproducing the picture to give our readers some notion of what they may look forward to if *A.A.*'s recommendation bears fruit.

"The rope," says the caption under the picture, "is to get 3500 sales and advertising executives to Los Angeles, but from where we sit she doesn't need the rope." We might add that she just as obviously doesn't need the lathe in the background, or the boots, or any of the other props, either. Which probably explains why you won't be seeing much of this sort of thing in industrial advertisements.

Not Recommended

UP in Wisconsin the other day a workman fell smack into the business end of a stone crusher (type unspecified), and emerged with nothing more serious than a few bruises. We don't think the incident is any reflection on the crushing capacity of the particular machine involved, nor does it suggest to us that falling into crushers should become a popular diversion. In a nation oversupplied with dim wits who are eager to perch on flagpoles, swallow gold fish, or go over Niagara Falls in a barrel, an incident of this sort could easily touch off a mania for jumping into stone crushers.

A Rose Is a Rose

WE feel confident that our readers will be happy to know of the availability of a new industrial chemical building block which bears the catchy and euphonious name of "trimethyl orthoformate." These glad tidings were disclosed by the manufacturer's spokesman, who went on to say that "the trimethyl ester eventually might prove even more economical than its homolog, trimethyl orthoformate."

It's none of our business, of course, but we'd hate to see orthoformate get the axe, even in the interests of economy. Maybe they could call it "trimethyl ester, *née* trimethyl orthoformate." It ought to be a cinch to build snappy slogans and singing commercials around a moniker like that.

Burlesque Revival

THE N.L.R.B. has just handed down a weighty decision which makes it legal for an employer to be a "character" if he wants to. Seems that during an organization campaign the involved union lampooned the head of a California concern as a slave driver. So on the day the employees voted on the union question, the boss dressed up in a Simon Legree costume and stalked through the plant snapping a whip. Having lost the election, the union promptly filed a complaint with the Labor Board, alleging that the employer's burlesque act had "unduly influenced" the workers.

With the supply of characters in both union and management ranks virtually unlimited, we can't see any reason why competitive burlesque

shouldn't be employed regularly as a means of settling disputes. There's just one restriction we'd like to see made: that John L. Lewis be prohibited from playing the role of John L. Lewis. We've had all of that we can take.

Surprise

ACCORDING to a study just released by the Credit Research Foundation, "the most important problem facing credit executives for 1950 is that of collections." Not to be outdone by any old Credit Research Foundation, we've launched a few studies of our own. Among the amazing discoveries we've made is that the most important problem facing firemen in 1950 is that of putting out fires. Anyway you take it, it's a topsy-turvy old world.

Preliminary Testing Program Pays Off At New Sand Operation

By HARRY F. UTLEY

PRODUCTION capacity in the Los Angeles County aggregates industry was increased by a half-million tons annually late in December, 1949, when the new plant of the Torrance Sand & Gravel Company went into operation.

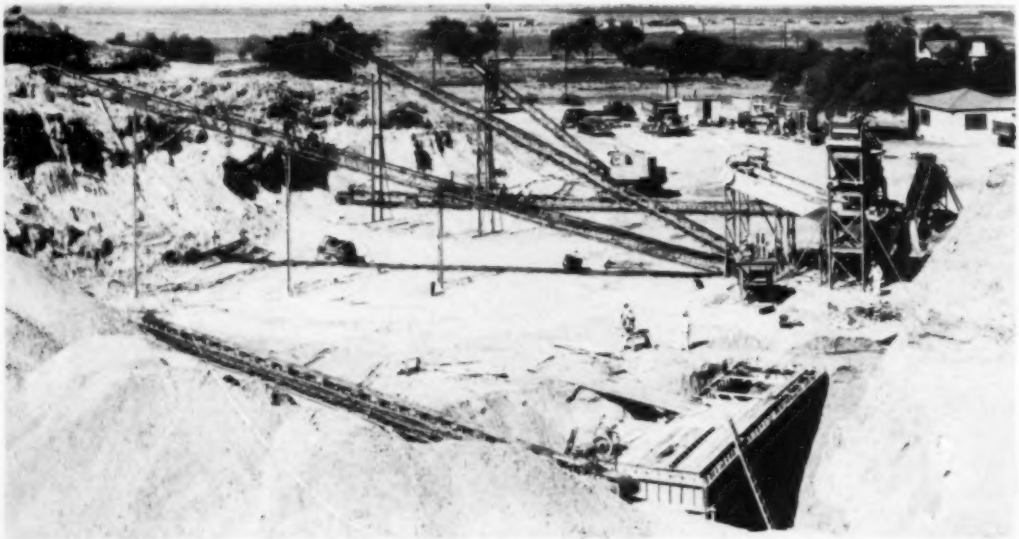
Located in Torrance, Calif., on the northeast slope of the Palos Verdes Hills, the new plant has a capacity of about 250 t.p.h., nearly 90 percent of which consists of high-grade concrete and plaster sands.

Before designing the plant its owners, Thomas H. Block and Charles W. Shepard, undertook a thorough job of prospecting and evaluating the material contained in the 117-acre deposit which they hold under a lease agreement. More than 60 test holes were drilled at strategic locations and the samples were shipped to Universal Engineering Co., Cedar Rapids, Ia., for study, analysis, and processing in pilot-plant equipment. As a result of this preliminary program, it was possible to develop a flow-sheet and utilize the proper machinery for economical and efficient production. This involved the removal of a high percentage of clay of a cementitious nature and enabled the engineers to specify the proper scrubbing equipment, as well as to determine the relatively large volume of wash water required. Universal was ably represented in the engineering and construction by Dick A. Aleshire of the Industrial Equipment Company, Los Angeles, its southern California distributor.

Equipment was erected by Mac Men, Inc., of Los Angeles, who developed a new idea in erecting the numerous stacker conveyors. These lattice-work structures were assembled in their entirety on the ground and then raised into position by crane. Key to the success of the operation was the rigging of the crane tables, which made it possible to lift the relatively light conveyor assemblies, some as long as 120 ft., without warping or buckling in the air while they were being raised into position onto the supports previously provided. An estimated 75 percent of crane time, 50 percent of labor, and three weeks of valuable production time was saved by this method.

During the time the plant was under construction, the company 'dozed off a good deal of overburden ranging from 1 to 4 ft. in depth This was sold as fill dirt and top soil. The plant hopper is of reinforced concrete and is 15 ft. below ground level. For some months, excavating the pit-run and transporting it to the hopper will merely be a job for a bulldozer-equipped Caterpillar tractor. Later on, the company may install a 5-cu. yd. drag-scraper or it may elect to excavate and carry to the hopper with self-propelled scrapers, a method which has been adopted recently in a number of pits in the West, particularly those in the San Francisco Bay region.

A Universal 30-in. double-stroke plate feeder at the bottom of the hopper puts the material, which rarely contains pieces as large as 3 in., onto a 24-in. by 100-ft. belt conveyor running up to a Simplicity 4- by 14-ft. triple-deck screen. Here the 1⅛-in. top deck and the 5/16-in. middle-deck woven-wire mesh re-



• The plant of the Torrance Sand & Gravel Company in the Palos Verdes Hills of California, as it appeared while under construction. Conveyors were assembled in their entirety on the ground.

jects the gravel, while the ¼- to ⅜-in. retained on the lower deck (concrete sand) and the minus ⅜-in. throughs (plaster sand) are further processed. Each screen deck is amply supplied with fan-type sprays. Initial washing of the material occurs in a mixing box which catches the material as it comes off the conveyor and nozzles wet it thoroughly before it is discharged to the screen.

The plus ¼-in. gravel is chuted to a 20-in. by 18-ft. Eagle screw washer, with log-washer paddles on the lower end for intensive abrading action under water. This washer loosens and removes any of the remaining clay, which is floated away to a flume running to a settling pond. After its discharge at the upper end of the tub, another 24-in. by 32-ft. belt conveyor carries the gravel to a Simplicity 3- by 8-ft. triple-deck rinsing and dewatering screen. The upper deck removes the plus 1-in. pebbles, which are chuted to a storage pile at present. Later on, the company expects to put in a 10- by 20-in. jaw crusher, in closed circuit with the rinsing screen, to reduce this material. The remaining two gravels, ¼- to ⅜-in., and ⅜- to 1-in., are carried to separate finished stockpiles, one by an 18-in. by 104-ft., the other by an 18-in. by 120-ft. stacker belt.

Returning to the primary screen, the concrete and plaster sands are chuted to a pair of Eagle 36-in. by 25-ft. single-screw classifiers. The screws are set close to the tubs, with minimum clearance to assure retention of fines in the 150-mesh range. Wash water enters through numerous small holes which diminish in size toward the upper end, maintaining a constantly-rising current to carry the soluble clay to the settling pond. As discharged, the moisture content of the clean sands seldom exceeds 12 percent. A cross chute permits the blending of the finer sand with the coarse if desired. Two 24-in. by 120-ft. stacker conveyors carry the finished sand to stock piles.

All the conveyors use Thermoid No. 450-A rubber belting. Tail pulleys are of the self-cleaning type.

The four piles of finish sand and gravel are in line, each having a capacity of about 2,500 cu. yds.

Finished material is loaded from storage piles into trucks by a P & H ¾-cu. yd. clamshell crane and a Michigan ⅜-cu. yd. shovel.

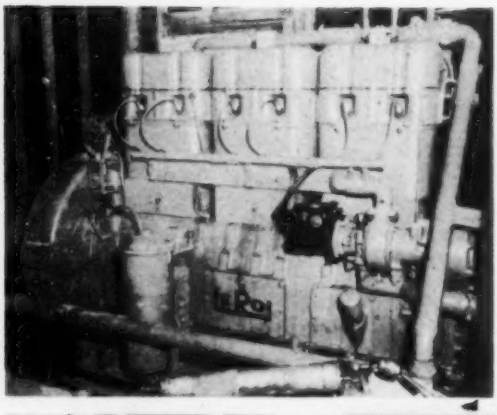
The thorough removal of the clay during processing requires an unusually large volume of wash water. The source is a 140-ft. drilled well, a Peerless pump lifting the supply to an existing 1,200,000-gal. concrete reservoir alongside which was formerly used to store irrigation water. The reservoir and well are more than a half-mile from the plant proper. An I-R Cameron pump handles the pumping of 2,500 g.p.m. to the plant through the long 10-in. pipe line under a 180-ft. head.

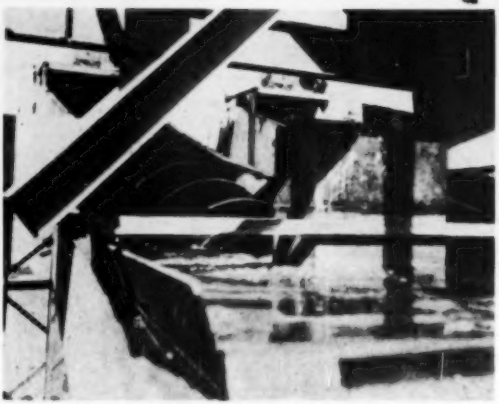
The deep-well pump is powered by a Model WOK Waukesha 100-

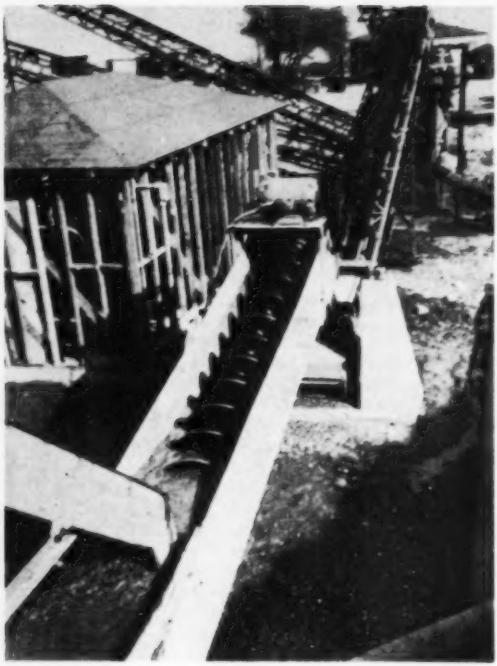
• Tommy Block, Chuck Shepard, owners of the new plant; and Dick Aleshire, engineer and equipment representative, who aided in the design of the plant.

• The gravel screen and stockpiling conveyors (right). Top-deck oversize in the foreground will later be reduced by a small jaw crusher in closed circuit with the screen.

• A view showing how the crane lifted the completed 120-ft. conveyor assembly for erection. Note the position of the several cables.







• The gravel washing screw and conveyor leading to the classifying and dewatering screen.

• Above, left: One of the two natural-gas-fueled engines which power the main pumps at the well and reservoir.

• Left: The pair of screw classifiers which make concrete and plaster sand, chief output of the new plant.

hp. natural-gas engine; a LeRoi 120-hp. natural gas engine drives the booster pump.

All dirty water from the screens and screws is flumed to a two-compartment settling pond for re-use later on. Another 2,000-g.p.m. Cameron pump driven by a 100-hp. Louis Allis motor will return the pond water to the plant.

At some time in 1950 the company expects to install a batch plant on the property and purchase a fleet of ready-mix trucks. When this is installed, salable material will be largely confined to sand, as the small amount of coarse aggregate produced will be used in the concrete plant mix. It will probably be necessary even to purchase some additional coarse material.

Shipments are weighed out by a Webb 60-ton truck scale. The truck platform is 60 ft. long to accommodate the long truck-and-trailer combinations used for delivery in the Los Angeles area.

Although this is their first venture into production, the owners have been quite close to the aggregates industry for many years. Mr. Shepard formerly was in the trucking business, while Mr. Block was a plastering contractor in Long Beach.

Bull Shoals

(*From page 62*)

of 1,689 tons. Equipment in this plant includes four compressors, two Sullivans, a Chicago Pneumatic, and an Ingersoll-Rand; seven Vilter Refrigerating condensers; and three 600-hp. Vilter refrigerating compressors.

Aggregates, sand, and cement are proportioned automatically in a modern batch plant and mixed in a battery of Koehring tilt-type mixers. It is interesting to note that these mixers handled most of the concrete at the Friant, Conchas, and Dale Hollow dams.

Thanks is herewith tendered to the following persons who were most helpful and accommodating to this writer at the time of his visit to Bull Shoals: M. H. Slocum, project superintendent; R. B. McRae, project engineer; Joe Shawver, quarry superintendent; Pope Schoenberger, sand plant superintendent; and John L. Kemple and Roy F. House, resident and assistant resident engineers for the Corps of Engineers.

Dalen Portland, Brevik, Norway, in 1949 had a production of 70 percent above pre-war level. The amount was 271,049 tons, of which 21,000 tons were exported.

Bureau of Mines Director Reports on Year's Progress

The reduction of coal-mine fatalities, development of ductile titanium, efforts to achieve self-sufficiency in manganese, the new "roof-bolting" method of supporting mine roofs, and many other advances in the mining industries were highlights of the recently published annual report of James Boyd, director of the U.S. Bureau of Mines to Interior Secretary Oscar L. Chapman.

Other activities of the Bureau, slanted toward the "twin goals" of national security and conservation of mineral and human resources, were described in the report, including data on coal and petroleum research, fuel savings, mineral investigations, and safety for mine workers.

Short-Center V-Belt Drives for Economy and Compactness

By FRANK H. RUMBLE
Texrope Drive Dept.
Allis-Chalmers Mfg. Co.

another P-Q exclusive

AMONG various advantages in the use of the V-belt drive to the stone products industry is its ability to operate on extremely short center distances. This feature is particularly desirable from the standpoint of economy and compactness.

Using the shortest practicable or ideal center distance on any V-belt drive lowers initial cost as well as maintenance cost. Short belts are lower in first cost and for replacements when they become necessary. They require less adjustment. It is also easier to maintain the proper tension on a short center drive, since there is less belt to stretch and get out of adjustment.

Compactness and space saving alone, of course, can be solved by direct connection with the prime mover to the driven machine. However, this method of power transmission is practicable only when the speed of the driven machine need not be different from the speed of the motor or prime mover and when no shock load is present. In other words, another advantage of the V-belt drive, and one which works hand in hand with the short-center feature, is that small or relatively large ratios—up to 7 to 1 and over—may be used to obtain the exact r.p.m. desired in the driven machine. Furthermore, the resiliency of the V-belts themselves allows peak loads and heavy starting torque to be absorbed without transmitting shock to either the driving unit or the driven machine.

In practice, the center distance—distance between shafts—of a V-belt drive may be comparatively long, or it may be as short as diameters will allow without the sheaves actually touching each other. Experience has shown that the shortest *practicable* center distance is the sum of the radii of the sheaves plus enough margin to enable the sheaves to be moved toward each other sufficiently for installing or changing belts. A margin of anywhere from several inches on fractional horsepower drives to several feet on the largest multiple drives may be sufficient for this purpose. However, because it is not always possible or desirable to use the very shortest center distance, the designer is given some leeway.

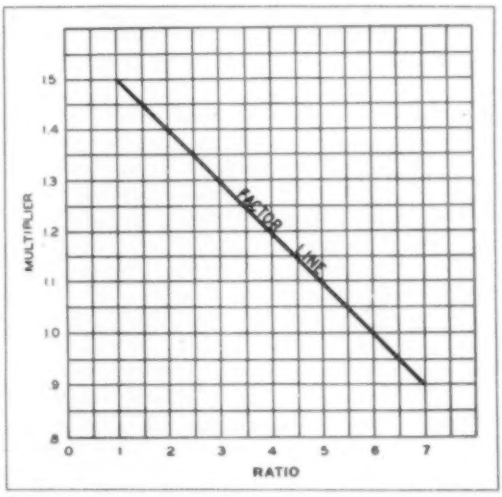
Arc of contact of the belts on the sheaves must be taken into account to obtain the best drive with the fewest number of belts. For greatest operating efficiency, the arc on the smaller sheave should never be less than 90 degrees. Taking all of these factors into consideration, V-belt drive engineers are agreed that, as a general rule, the ideal center distance of the drive, up to 7 to 1 ratio, is from one to one and one-half times the diameter of the large sheave. On the larger ratio drives, the center distance may be slightly less than the diameter of the large sheave.

Illustrated is a table which has been evolved for determining the ideal center distance proportionately. Let us assume that the diameter of a driven sheave is 30 inches. It is obvious that if the diameter of the driver sheave is also 30 inches, the center distance of the drive must be considerably more than 30 inches. The sum of the radii of the sheaves alone is 30 inches, and in that space they could not be belted.

Note, however, that for 1 to 1 ratio drives, the rule allows a center distance of one and one-half times the diameter of the driven sheave. In this case the ideal center distance would be 45 inches. If the diameter of the smaller or driver sheave is five inches, a 6 to 1 ratio drive, a multiplier of 1.0 times the diameter of the driven sheave shows the ideal center distance to be 30 inches. Similarly, the table can be used to determine the approximate multiplier for calculating the ideal center distance for drives of any ratio.

Many V-belt drives now operating satisfactorily have a longer distance than is necessary, yet the longest centers found on V-belt drives are short when compared with flat or other types of belt drives.

To enable the engineer to design any drive with a center distance as near the ideal as possible, V-belt manufacturers have standardized on a considerable number of lengths in the five standard belt sizes—A, B, C, D, and E sections. It is usually possible to select stock belts and sheaves, and by varying the size of the sheaves while keeping the same ratio, to obtain almost the exact center distances desired. This must and can be done without violating any of the basic principles of good V-belt engineering, such as recommendations concerning minimum sheave diameters or excessive belt velocity. Use of the short center is very desirable, but it should not and need not be attained at the sacrifice of efficiency and long life of the drive. It is possible to have all three.



● Locate ratio on base line and trace imaginary line vertically to factor line; then horizontally to multiplier scale on left hand margin. Multiplier times diameter of large sheave equals ideal center distance.

At Murphy, N. C., the Hitchcock Corporation will reclaim iron-stained talc which heretofore has been discarded. The firm will process the material at its new bleaching plant, using a method developed by Tennessee Valley Authority and North Carolina State College specialists.

We are

Building Through Crushing

• View of the present N. V. Steenbrekerij Holland plant which was completed in 1946, showing crusher housing, workshops, bins and screening tower.

is the significant motto of One of Holland's few modern crushing plants, which from modest beginnings in 1936 is now producing 250,000 tons of gravel per year

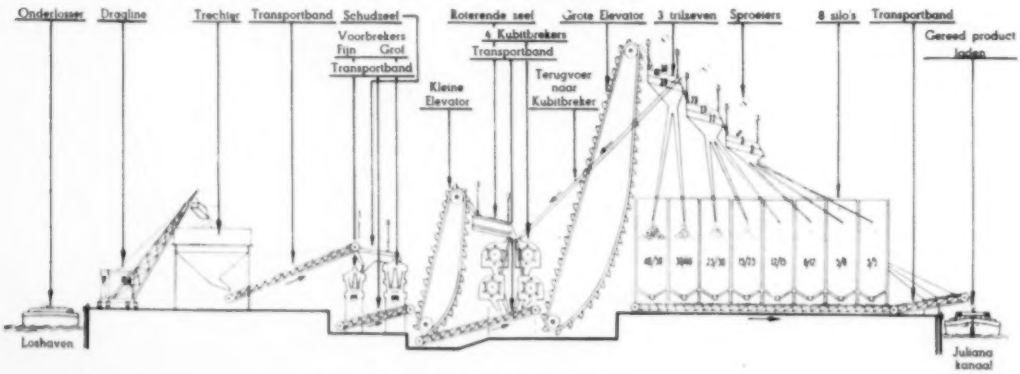
CONSTRUIMUS fragendo—we are building through crushing. N. V. Steenbrekerij Holland, guided by this motto, has grown during a period of less than 15 years from a semi-portable installation to one of the most modern of Holland's gravel crushing plants. Located at the extreme south of Holland, approximately 2 miles north of Maastricht near the village of Borgharen, the present plant was completed in 1946. Its importance to the Dutch industry can be readily understood in view of the fact that but a few gravel crushing installations are operated in that country, a limitation imposed by a lack of domestic deposits. Consequently most of the crushed granite, basalt, etc., is imported from Belgium, Germany and Norway. The N. V. Steenbrekerij Holland contributes 250,000 tons per year to the alleviation of this shortage.

The plant is adjacent to the Juliana Canal, which connects with the Meuse River a short distance away. Since the river bed supplies the raw material, which is recovered by dredging, the waterway furnishes an economical supply line. The gravel is washed on the dredge, where the minus 2-in. is screened and shipped by barge to customers without further processing. The plus 2-in. gravel, including boulders up to 16-in. diameter, is shipped in special bottom-dump barges a distance of 1¼ miles to the plant harbor on the Juliana Canal. Here the material is dumped through the bottom of the barges onto the floor of a ship just off the harbor, where up to 2,000 tons can be deposited without disturbing ship movements.

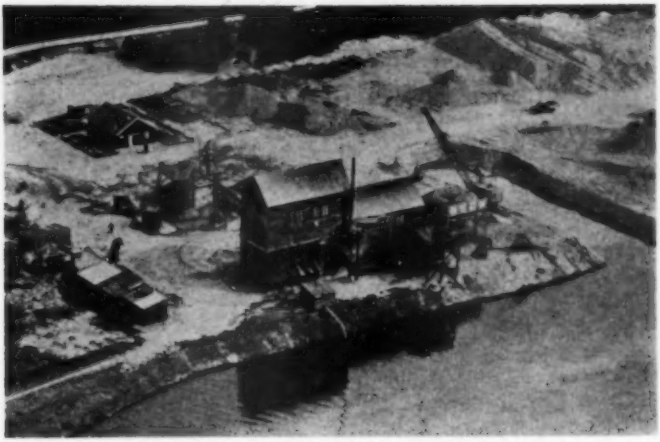
Reclaiming from the harbor floor is accomplished with a 3¾-cu. yd. dragline which transfers the boulder-laden gravel to the plant feed bin. A chain feeder discharges on a 40-in. inclined belt conveyor to a vibrating grizzly screen atop the primary crushers. This screen separates the gravel into 2- to minus 5-in. and 5- to minus 16-in. sizes.

The minus 5-in. gravel is fed to

• Flow sheet of the N. V. Steenbrekerij plant.



Schema N.V. Steenbrekerij "Holland"



• The old crushing plant which was operated from 1936 to 1946. The harbor slip and the dragline which reclaims the uncrushed gravel are seen at the far right.

• Screen and feeding chute leading to the primary crushers.

a Symons standard cone crusher, while the plus 5-in. goes to an Allis-Chalmers McCully crusher. The material discharged from both these primary crushers is carried on a short belt conveyor to a bucket elevator leading to the secondary crushing department.

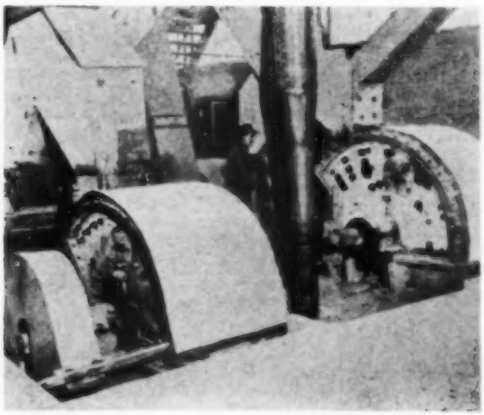
Here a rotary screen classifies the material into plus and minus 2-in. sizes and removes the dust. Four Cedarapids Kubit breakers handle the secondary crushing requirements, two on the plus 2-in. and two on the minus 2-in. Crushing parts in this stage encounter unusually heavy wear.

From the breakers the crushed gravel is dropped on a long belt conveyor, which also receives the spillage from the bucket elevator

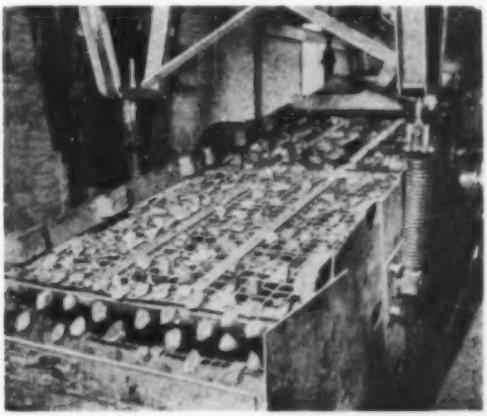
(*Continued on page 83*)

• Conveyor loading a barge in the Juliana Canal. A truck is seen loading simultaneously.

• Four breakers are used for secondary crushing, two for handling the plus 2-in. and two for the minus 2-in.



• One of the 3-deck vibrating screens. These screens are equipped with jet spray bars for washing the gravel.



Basic Business Records

By DAVID MARKSTEIN

TO some minerals producers, bookkeeping is the hardest chore in the world; they dread the end of the year, when it is necessary to dig out the figures for Uncle Sam's collectors of internal revenue. But to other minerals producers the job of keeping simple, accurate business records is a matter of very easy routine. The difference usually is a question of system.

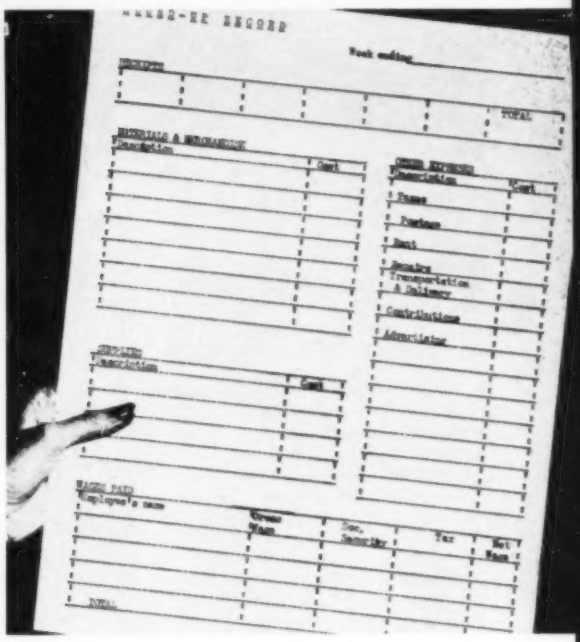
Illustrated here are five steps to sound business bookkeeping. These five forms, bound together into a brief folder or a loose-leaf notebook, tell you not only all of the facts you need to fill out your income tax returns for Uncle Sam's boys, but the facts needed to guide you in the efficient operation of your company as well. It is a fact that good bookkeeping is one of the marks of a good businessman. Without records, a business is like a ship without a rudder. The records are important. But they need not be irksome.

Form 1 is the main bookkeeping form. It tells you everything about your business each week—how much you took in, how much you spent, what you spent it for. It sums up the wage records, including social security withheld, income tax withheld, and total and net wages for each employee.

Form 2 is a credit ledger for companies which permit accounts. On a single sheet, this ledger summarizes every payment and purchase made by a customer. You can spot the customer who is lagging too far behind in his payments by noting the amounts carried over as a balance from previous months. This form, furthermore, makes it easy to spot the customer who has not been buying, so that he can be sent advertising material, or can be personally sold on making his account active once more.

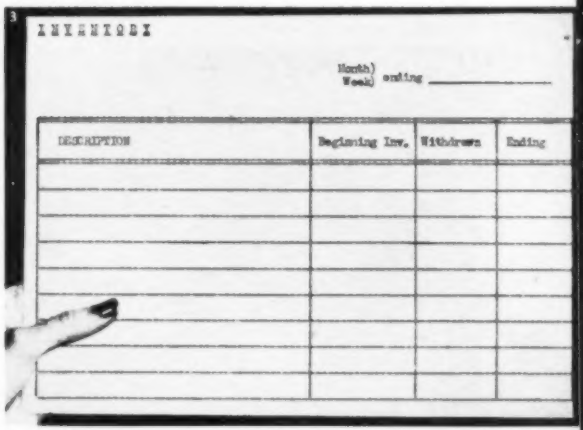
Form 3 is an inventory record. On it you note purchases and withdrawals from reserve stock each week. The amount in the final column tells you when quantities of an item are getting before running too low, so that you can reorder out of stock.

Form 4 is the depreciation record. Government regulations forbid you to charge off (for income tax purposes) a piece of heavy equipment in a single year. You must depreciate it over several years. This is a sound business practice, too. In column one, note the name or description of the fixture; in column two its value, determined by its cost to you. In column three, you put down the approximate number of years for which it will be serviceable. If you expect it to have a trade-in value at the end



Form No. 1

Form No. 2



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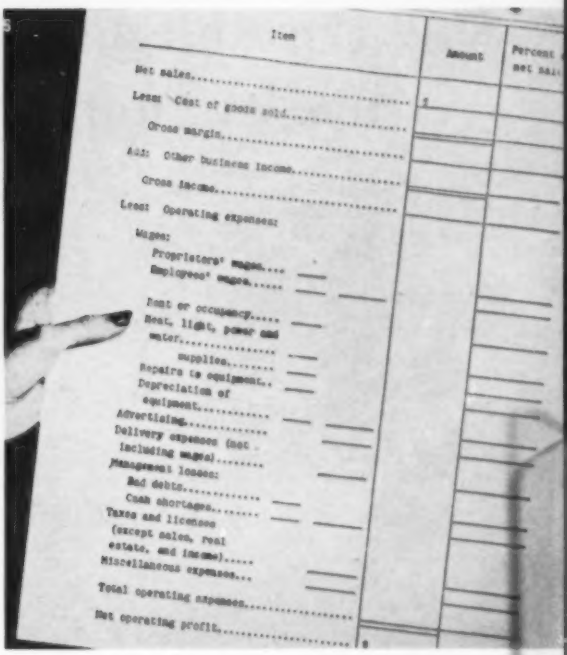


Above: Form No. 4 Right: Form No. 5

of those years, enter the estimated trade-in price in column four. Then, in the columns for various years, indicate how much depreciation is charged off during the 12 months. A $1000 fixture with a life of five years and a trade-in value of $200 at the end of that time would be depreciated $160 annually—the $800 "net" arrived at by deducting a $200 trade-in from $1000 value, divided by five, the number of years for which the fixture will be serviceable.

Form 5 is the one which tells you how well (or perhaps how badly) your business did during the year. It is a profit-and-loss statement. From it you get the facts for filling out your income tax returns. The yearly profit-and-loss statement is actually a summary of 52 No. 1 round-up forms. Many minerals producers do not like to wait a full year to get a summary of how they are doing, and an exact profit figure. They fill out these profit-and-loss statements every quarter year, and sometimes every month, later making a composite profit-and-loss statement for the 12 months at the end of the calendar (or fiscal) year.

We Build through Crushing

(*From page* 81)

leading to the secondary crushers, to be transported to another bucket elevator, this one 30 ft. in height and terminating at the final classifying screens. These consist of a series of three large triple-deck screens, having a total screening surface of 80 sq. yds. They are equipped with jets passing 275 cu. yds. of water per hour, for washing the gravel. In the washing process the minus 3/16-in. is drained off to a sand separator. In this manner the plus 3/128-in. (.3mm.) is recovered and marketed as sand for concrete masonry products, asphaltic concrete, etc.

The gravel proper is classified in eight different sizes ranging from minus 2-in. down to 3/16-in. Since a conversion to linear equivalents results in cumbersome fractions, the various sizes broken down in millimeters are as follows: 40 to minus 50, 30 to minus 40, 23 to minus 30, 15 to minus 23, 12 to minus 15, 8 to minus 12, 5 to minus 8, and 3 to minus 5. These are chuted off for storage to eight reinforced concrete bins, each of 500-ton capacity. The plus 2-in. rejected by the screens is returned through a spout to the plus 2-in. Gubit secondary crushers.

To accommodate water shipment of the finished product, a long belt conveyor, on which different sizes of gravel are mixed, runs beneath the storage structure, where it receives material from the bins through bottom gates. At its terminus a second belt conveyor juts over the bank of the canal at a 90-degree angle for loading into boats or barges. Trucks can be loaded without interrupting the flow of material on the boat-loading conveyors.

The company fabricated its own conveyors, using Rex idlers. Feeding belts are 40 in. wide and shipping belts 26 in. wide.

The N. V. Steenbrekerij Holland was founded in 1936 by Messrs. Schoolderman, Zanen, Jaartsveld and Leffelaar, a group of prominent road builders. The plant at that time was a small semi-permanent installation. Operations were partially discontinued from 1940 to 1945, and in 1946 the present plant was built. The firm has produced and sold more than 1,000,000 tons of gravel since its origin.

C. F. Leffelaar is managing director, which was the original position he assumed in 1936. The firm's offices are centrally located in Amsterdam.

General Offices of the Marblehead Lime Company were moved on April 24 to 1710 Mercantile Exchange Building, 308 West Washington Street, Chicago.

One Portable Plant Works Four Quarries

By EDWARD J. BRUNENKANT

southern ON THE SPOT report

IN order to shorten the truck haul to his customers, L. S. Hackney works four quarries in the Rockford, Ill., area using one portable crushing and screening rig. The quarries are strategically located to serve an area measuring about 10 by 60 miles. Each quarry is worked for a period of four to six weeks until adequate stockpiles are built up. Then the plant is moved to the next stop in the quarry circuit. A loader (the company operates three: a Hough, an Eagle, and a Haiss) is left at each quarry to load out trucks.

Last year the L. S. Hackney outfit produced about 150,000 tons of material, of which 50 percent was agstone and 50 percent road stone. The plant is operated on a year-round basis, shutting down only when the temperature drops to zero or below.

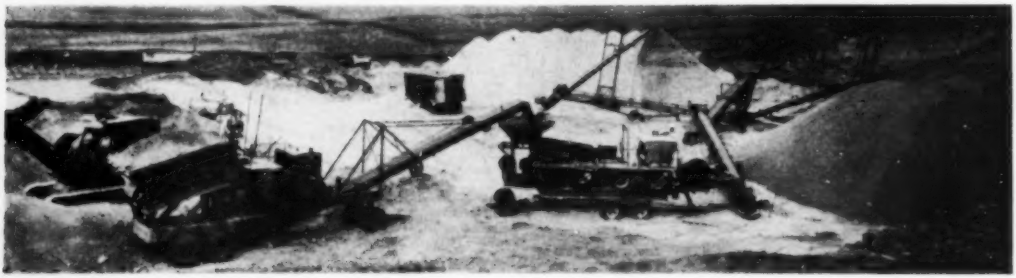
Mr. Hackney headquarters in Davis Junction, Ill., a small town, located a few miles south of Rockford. Prior to buying the plant in 1945, Mr. Hackney was sales manager for Universal Engineering Corporation. Many of the operating ideas which he picked up while traveling for Universal have been profitably adapted to his own operation.

What overburden there is covering any one of the four deposits is stripped on a contract basis. The drilling and blasting is also let out to an independent contractor. Although costs could be shaved somewhat by doing this work himself, Mr. Hackney feels that the extra trouble involved would not be offset by the small savings. The drilling contractor sinks the blast holes with a mobile rig consisting of a truck carrying a Schramm compressor and a wagon drill mounted on the front of the chassis. The hole is drilled with 18-ft. steel; no changing is required.

Primary blasting breaks down the stone to the point where no secondary shooting is required at any of the quarries. A 4000-lb. pearshaped drop ball is used whenever it is necessary to reduce the small amounts of oversize stone. The ball is fitted with a loop hitch and picked up with the shovel teeth, thereby eliminating the need for changing the front-end attachments on the shovel. This drop ball is considered one of the most indispensable pieces of equipment in the plant.

A Link-Belt Speeder ¾-cu. yd. gasoline shovel loads shot stone directly into a receiving hopper positioned over a Universal 36-in. by 8-ft. apron feeder. The feeder is set on an incline with the rear end closer to the ground, thereby lowering the overall height of the receiving hopper. With this arrangement the height of the arc described by shovel swing is reduced, an important time-saving feature. The feeder is chain driven off the jaw crusher and operates at constant speed. Material falls off the end of the feeder onto a grizzly where the fines are split off. The oversize is reduced in a 20- by 36-in. Universal jaw crusher with a jaw setting of between 3 and 3½ inches. With this jaw setting and with the ¾-cu. yd. shovel used to feed the crusher, about 100 t.p.h. are put through this end of the plant. A larger shovel, of course, would increase this capacity. When the proportion of fines put into the plant is unusually high, the grizzly is covered with

• A closeup shot of the primary crushing plant at the Hackney plant near Davis Junction, Ill. Note how the hopper is inclined towards the ground in order to lower the swing of the shovel.



• A general view of L. S. Hackney's portable crushing plant. These units are used to work four different quarries. Since this picture was taken, a longer portable conveyor has been placed between the primary and secondary units.

• The crew poses beside the secondary screening and crushing plant. Left to right: Lee Knaub; Bill Hackney; L. S. Hackney (owner); L. S. Hackney Jr. (mechanic); and Ralph Miskimmon (plant manager).

a blank screen. If the grizzly were left open, the belt which collects the fines through the grizzly as well as the crusher discharge would soon become overloaded. The jaw crusher is pulled through V-belts with a D8800 Caterpillar diesel engine. When in operation, this portable, self-contained primary plant is jacked up on three screw jacks.

Crushed stone leaves the primary plant on a 21-ft. belt conveyor and is transferred onto a 36-in. by 60-ft. portable belt conveyor connecting the secondary crushing plant—also portable. A system of interlocking portable conveyors carries the stone from the shovel through the primary and secondary crushing operations to the stockpiles. After the plant is once set up, the only unit that is shifted is the primary plant, which moves with the shovel.

At the secondary plant, the stone falls into a hopper positioned over a clutch-controlled reciprocating feeder which loads a Simplicity 3-by 8-ft. single deck screen. Oversize rejected off the ¾-in. screen cloth is chuted to a Universal No. 4 hammermill. The screen throughs and the hammermill product are joined on a common belt which discharges onto a sharply inclined gravity screen. (See cut). Through a lever arrangement the inclination of this screen can be varied. When a higher percentage of agstone is wanted, the screen is cranked to a more nearly horizontal position; and when more road stone is wanted, the screen is tilted toward the vertical.

• Left: The inclined gravity screen used to separate agstone and roadstone. The angle of inclination can be varied to change the proportion of agstone to roadstone split off by the screen.

Two portable conveyors, each 18 in. by 60 ft., carry the agstone and road stone to respective stockpiles.

All of the portable conveyors in the plant are driven with 7½-hp. G.E. electric motors. Electric power is generated with an 80-kv.-a. generator driven by a Murphy ME-6 diesel engine. The hammermill is powered with a GM twin 6 diesel engine.

Two old moving vans have been converted into a generator house and into a portable shop. In addition to crushing material from their own quarries, the plant is used to process gravel in a pit operated by the township.

• One of the company's three loaders used to load out material from the stockpiles.

Fuller's Earth Output Down by 6 Percent in '49

The output of fuller's earth in 1949 totaled 320,906 short tons, valued at $5,199,642, a decrease of 6 percent in tonnage and 1 percent in value from 1948, according to reports of producers to the Bureau of Mines. The quantity produced in 1949 (320,906 tons), although 6 percent less than in 1948, the peak year, shows a slight increase over the five-year average, 1945-49 (317,435 tons).

Rotary drilling mud was the only use that showed an increase over 1948. Operations at the Olmsted, Ill., pit were discontinued. The following states showed increases over 1948: California, Mississippi, Tennessee, and Texas; the remainder showed decreases. The Georgia-Florida area produced 57 percent of the total tonnage; Texas, 31 percent. The average value rose from $15.42 in 1948 to $16.20 in 1949.

Report on Current Labor Developments

By S. HERBERT UNTERBERGER
Director of Research
Labor Relations Information Bureau
Washington, D. C.

IN the last month, the National Labor Relations Board has made a series of decisions interpreting the Taft-Hartley Act which are of importance to every employer who deals with a labor union.

Strikes During Contract Term

The binding character of contracts between employers and unions was weakened considerably by a recent decision of the National Labor Relations Board. The Board ruled that if a union wishes to change the terms of a contract even before it has expired, it can demand such a change; and if the demand is not met, the union is free to strike. The only requirement which the union must observe is that it must give 60 days' notice of the proposed modification or termination. It may not strike during the 60-day period, but it is free to strike as soon as that period has expired. Two Board members felt that even 60-day notice was not necessary.

Presumably, on the basis of this ruling, employers, too, could request contract changes during the term of the agreement. They would be permitted to lock the employes out after a similar 60-day period.

The best protection against such strikes is the inclusion of a clause prohibiting them during the term of the contract. If they occur despite such a clause, the union is guilty of violating its contract and it may be sued in the federal courts for any resulting damages.

Unions at Grievance Sessions

In the first case of its kind, the National Labor Relations Board gave a more precise meaning to the clause in the Taft-Hartley Act which gave unions the right to be present at the adjustment of all grievances.

An employer insisted on a clause in his contract whereby grievances could be adjusted between the foreman and the worker without any notice to the union steward. The union contended that such a clause was in violation of the express provisions of the Taft-Hartley Act and that management's insistence on the clause consituted refusal to bargain. The N.L.R.B. agreed with the union.

This decision provides an answer to only one of the questions raised by the Taft-Hartley provision that the union must be given an opportunity to be present at the grievance adjustment. It says in effect that the union has the right to be present *at every step* of the grievance proceeding.

It does not tell what the union's right to be present includes. It does not state whether the union's right to be present includes the right to receive or examine copies of written complaints and answers. It does not state whether the union's right to be present includes a right to make its point of view known, or whether it may participate in the discussions.

The latter problem is especially important since the Taft-Hartley Act also says that the adjustment of the grievance must not be inconsistent with the term of the collective bargaining agreement. Suppose the employee and the foreman agree on an adjustment of the grievance, but the union feels that that adjustment is in conflict with the agreement. What is the next step? If the employer refuses to go through with the adjustment, he is certainly in difficulty. He may be accused of acting in bad faith. And what may be more serious, he may be accused of discriminating against the employee, an unfair labor practice subject to an N.L.R.B. proceeding.

On the other hand, if the employer goes through with the agreed-upon adjustment, he may be in equally serious difficulty. The union could accuse him both of violating the law and of violating its labor agreement. The employer could then become subject to an N.L.R.B. proceeding or even a court action.

It is clear, therefore, that when an employer is handling a grievance presented to him directly by an individual employee, he is skating on extremely thin ice. It is his responsibility to see to it that all parties are satisfied and are not discriminated against. He must see to it that the grievance is properly settled in a manner consistent with the labor agreement. Failure to fulfill these obligations would make him chargeable with the unfair labor practice of refusing to bargain collectively or of interfering with the employee's right to engage in concerted activities for mutual protection or of discriminating in regard to tenure or terms of employment in order to discourage membership in a labor organization. There is also the possibility of a court action for damages.

Tight Management Rights Illegal

An employer who refused to sign a union agreement unless it included a clause giving him the exclusive right to hire, discharge, or discipline employees and to determine schedules of work was found by the N.L.R.B. to be in violation of the law. The Board ruled that management's insistence upon these rights constituted refusal to bargain.

The Board ruled that management was using the prerogative clause as an attempt to avoid agreement unless the union relinquished a significant portion of its bargaining rights.

This decision is just another one in a long line of decisions in which the Board has found one party or the other guilty of refusal to bargain where it has set up conditions precedent to collective bargaining. In general, the position of the N.L.R.B. is that the law requires bargaining in good faith on every relationship between the employer and the union. Thus, when the steel companies refused to bargain on pension plans, they were adjudged guilty of refusal to bargain. On the other hand, when the Mine Workers Union refused to bargain on other matters until the welfare fund problems were settled its way, it was found guilty of the same charge.

Bargaining in good faith does not mean that either side has to agree to anything, but it does mean that there has to be a record of full discussion plus some give and take. It is almost a foregone conclusion that absolute refusal to discuss a matter or refusal to discuss some matters until others are settled your way will be regarded by the Board as "refusal to bargain."

Work Week Cuts

An employer ran afoul of the labor law recently when he reduced his work week from 45 to 40 hours. Normally this action would have been no violation. However, he took the action right after a union had won a representation election.

In that situation, the N.L.R.B. found that the cut was a demonstration of economic sanctions, and it became a case of illegal discrimination for union activities.

The employer was ordered to reinstate the 45-hour work week and to reimburse the employees for lost earnings. The employer may in the future reduce the work week but only if he can demonstrate that the action has no taint of discrimination.

S. W. Portland Cement Co. Expands El Paso Facilities

At the El Paso (Tex.) plant of the Southwestern Portland Cement Company construction has begun on additional cement producing facilities. Excavation for the foundation of a fourth kiln is nearing completion, according to an announcement made by W. R. Blair, vice-president of the firm.

Mr. Blair announced that production would be increased to approximately 4000 bbls. per day. The new kiln will be on a 24-hour-a-day production basis, the three other kilns of the plant having been on that schedule since 1941.

Other improvements at El Paso include dust collection equipment and the addition of power shovels.

Pacific Coast Aggregates, Inc., San Francisco, Calif., reported sales of $13,373,216 for the year ended December 31, 1949. In 1948 the sales figure was $12,807,525.

Cement, Pozzolan Contracts Awarded for Montana Dam

Award for a $980,000 contract to supply 280,000 bbls. of cement was announced at Denver by the Ideal Cement Company. The cement will be used in the construction of the Canyon Ferry Dam in Montana.

At the same time a contract for 22,600 tons of pozzolan for the same project was awarded to the Combustion By-Products Company of Chicago on its bid of $31,640.

Shale Planer Cuts Excavating Costs at Carolinas Agstone Plant

SINCE September, 1947, excavating operations at the agstone plant of the Carolinas Cement & Lime Co., Harleyville, S. C.,* have been successfully carried on with an Eagle Iron Works shale planer. By May, 1949, this machine had cut down approximately 100,000 tons.

The material processed here is known as Santee marl, which is an exceptionally uniform high-calcium deposit with a $CaCO_3$ content of above 97 percent. The company controls a 900-acre tract, of which 500 to 600 acres have been drilled and surveyed, proving an exploitable deposit of around 55,000,000 tons.

The quarry worked here has a 50-ft. face. Because of the physical characteristics of the deposit, experience has indicated that the planer operates most economically when adjusted for a ½-in. cut. With a ½-in. cut, the machine will advance about 31 in. per 8-hour shift—the best daily advance to date being 47 in. In this quarry, a ½-in. cut over a 50-ft. face will bring down about 4 tons of stone. Material planed off the face by the downward traveling cutters is loaded onto a belt conveyor connecting the pit with the raw storage building.

The planer is electrically powered and has "trolley car" controls for easy operation. The cutting chain is driven by a 60-hp. 440-volt motor which pulls 50 amps. for normal cutting, 60 amps. for a heavy cut, and 125 to 150 amps. for an extra heavy cut. Two other power units needed to run the planer are a 5-hp. swing motor and a 1½-hp. advance screw motor—giving a total connected horsepower for the machine of 66½.

Two important operating advantages are claimed for the planer. First, the material is planed off continuously at costs substantially under those for other excavating methods; and second, the particles delivered to the raw storage plant are of such a small size that the reduction cycle is simple and cheap.

According to Charles F. Lewis, vice-president and general manager of the Carolinas Cement & Lime Co., excavation with this planer offers possibilities in economy superior to anything yet developed. Maintenance costs can be cut down by correcting the drainage condition which causes shifting of the rail tracks on which the machine rides.

*See Avery, William M., *Agstone Unit of South Carolina Concern Producing 10 Carloads Daily*, PIT AND QUARRY, June, 1947, page 83.

• Right: Note the ideally smooth condition of the quarry face. Excavating with a planer-type machine is said to lower the cost of pulverizing.

• A closeup view of the shale planer at work in the Carolinas Cement and Lime Company's quarry, where the working face is approximately 50 ft. high.

Men of the Industry—L. H. Brown of Johns-Manville

LEWIS H. BROWN, chairman of the board of Johns-Manville Corporation, is one of the leaders among those business executives who hold that business management today is a trusteeship. He believes that management, instead of representing any one interest, must maintain a proper balance of equity between the stockholders, the jobholders, customers, and the public.

Johns-Manville is the world's largest producer of asbestos building materials, insulations and allied products. Used in the construction field, in industry, in transportation and by the armed services, the products of Johns-Manville are equally essential in peacetime or in wartime. The company produced large quantities of materials for the defense program prior to Pearl Harbor and was then able to step immediately into full war production.

In addition, at the request of the government, Johns-Manville managed the construction of the Kansas Ordnance Plant in 1941 and operated it until 1945. The plant produced $550,000,000 worth of ammunition for the government.

Mr. Brown's business activities are not confined to Johns-Manville. Beginning in June, 1942, he served as advisor to Major General L. H. Campbell Jr., chief of ordnance. On June 27, 1946, he was awarded the Medal for Merit for his distinguished services to our country.

Mr. Brown is a director of the American Telephone & Telegraph Company and a director of the Federal Reserve Bank of New York. He was one of the founders of Tax Foundation, Inc., and is now a member of its board of directors. He is also a member of the board of directors of the Citizens National Committee, a group of educators, economists, and business leaders organized to make continuing surveys and efficiency in federal government operations.

Like many other industrial leaders, Mr. Brown began life in a small town. He was born on February 13, 1894, in Creston, Ia., the son of Arminta (Cole) Brown and the late Lewis Henry Brown. When he was ten years old, he was working on a farm. Twenty-five years later, when he was only 35, he was to become president of Johns-Manville, one of the youngest men in the country to hold such a responsible position.

By working at various jobs after school hours and during vacations he saved enough money to launch his college career. He entered the State University of Iowa in 1911 and obtained the money needed to put him through college by working as a librarian and research assistant for the State Historical Society of Iowa. He graduated in 1915 with a bachelor of arts degree, having also studied law.

Lewis H. Brown

Mr. Brown started his business career in the sales department of the Fort Wayne Corrugated Paper Company as soon as he left college. He was paid $15 a week. Two years later he was assistant to the sales manager. In May, 1917, a month after the United States declared war, he left the company and joined the First Officers' Training Camp at Fort Benjamin Harrison. He was sent to France as a captain in 1918 and served with the A.E.F. until May, 1919.

Upon his return from France, Mr. Brown looked for a job in Chicago and was engaged by Montgomery Ward & Company in the personnel department. At the end of eight years he rose to the post of assistant general operating manager of all plants. T. F. Merseles was president at the time. When Mr. Merseles was chosen president of Johns-Manville Corporation in 1927, he took Mr. Brown with him to New York as his assistant. Upon the death of Mr. Merseles a little less than two years later, Mr. Brown was elected president and a director of Johns-Manville.

Mr. Brown is one of the first business executives to conduct a series of informal, regional stockholder meetings in various cities throughout the country. He inaugurated this program in 1941, when he held 12 such meetings and personally discussed with Johns-Manville stockholders the company's history, its management, its personnel, earnings, balance sheet, and physical assets.

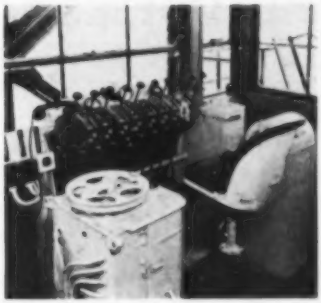
Mr. Brown has also devoted much attention to the program of developing a closer understanding between management and employees. Johns-Manville adopted the practice of collective bargaining and established the policy of the eight-hour day and the 40-hour week long before these were required by law. To determine how employees felt toward the company, what they knew about it, and what suggestions they had, Mr. Brown introduced employee attitude surveys which are used to guide the management in formulating policies.

He was one of the first business heads to make a financial report to employees of his company as well as to stockholders. Since the first such report was published in 1937, the company has been issuing both annual and semi-annual reports. Company policies on the practice of collective bargaining and on such subjects as "wages" and "hours of work" have been published and distributed to employees, and numerous other means are used to keep employees fully informed on Johns-Manville activities.

Mr. Brown served as general chairman of the 23rd and 24th Annual Roll Calls of the New York Chapter, American Red Cross, during its 1939 and 1940 campaigns. He was also chairman of the Citizens War Relief Committee of the New York Chapter of the American Red Cross during its special drive in 1940. He was president of the Asbestos Institute in 1933, a member

(*Continued on page 92*)

New Oyster Shell Dredge, "Erle B. Halliburton", Launched



• All mechanical equipment for the dredging operation is controlled by a single operator from a control house atop the quonset-type deckhouse.

• Left: In addition to all-purpose dredge operation, the "Erle P. Halliburton" is also equipped to do a complete oyster-shell-washing job aboard.

A NEW dredge was recently delivered to the Corpus Christi, Tex., cement plant of the Halliburton Portland Cement Company. Although the *Erle P. Halliburton* is designed for all-purpose dredge operation, it is also equipped to do a complete oyster-shell-washing job aboard. The dredge will operate in Nueces Bay and produce oyster shell for the cement plant at Corpus Christi, Tex. It can be used as a pipe-line dredge. Before its operation in shell recovery work it dredged a channel to the plant.

The hull is of all-welded construction, 104 ft. by 26 ft. by 6 ft. 6 in., with a 45-ft. ladder and 40-ft. spuds. Provisions were made whereby the ladder could be lengthened to 65 ft. and the spuds to 70 ft.

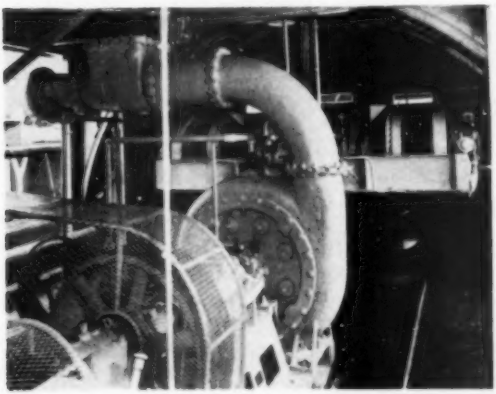
The shell-washing equipment was designed by Erle P. Halliburton Sr., and was built in the shops of the Halliburton Oil Well Cementing Company at Duncan, Okla.

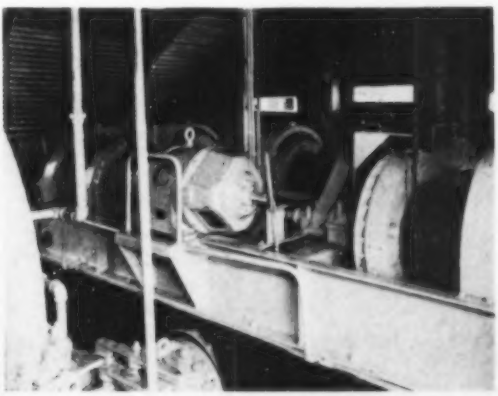
The air and electrical controls are centered in the control house atop the quonset-type deckhouse, and the operator has control of every movement of mechanical equipment aboard during the operation of the dredge. Handling of the over-length ladder and spuds, as well as other equipment aboard, is done with a 5-drum American hoist. The quonset deckhouse was selected because it was light and it reduced wind resistance. Space is provided for a crew of four.

After the deposit is loosened with an Amsco cutterhead, the shell is drawn into the dredge through

(*Continued on page 92*)

• The main pump in the foreground has an 18-in. intake and a 16-in. discharge.





• This 5-drum hoist is used to raise and lower the overlength ladder and spuds.

New Jersey Firm Uses Airslides for Conveying Pulverized Silica Sand

By WILLIAM M. AVERY

WHEN we announced* in these pages a little over a year ago that the Fuller-Huron Airslide had been successfully adapted to a wide range of conveying jobs within the cement industry, we predicted that the device would soon see use as the materials-handling medium for other fine nonmetallic minerals. One of the first applications outside the cement industry came to our attention not long ago when we visited the South River Sand Company's plant at Old Bridge, N. J., where an outstandingly successful installation has been made for the purpose of conveying pulverized silica.

*See Avery, William M.: *Meet the Airslide*, PIT AND QUARRY, February, 1949, page 62.

Marcus S. Wright Jr., president of the South River Sand Co., Old Bridge, N. J., and Walter O. Wright, assistant plant superintendent.

Since our initial story about the Airslide may have escaped the attention of some of our readers, a brief description of its method of operation seems in order. The Airslide is in reality a gravity conveyor in which the material to be moved is fluidized by passing low-pressure air through an inclined porous medium. The porous medium, which supports the stream of material, is a woven canvas fabric belting with high resistance to air flow. The belting is cemented to a sheet-metal duct which forms the lower half, or air chamber section, of the conveyor. Air is admitted to this chamber at any point in its length through conventional duct work connected to the discharge of a small blower serving one conveyor or a battery of conveyors.

When the Airslide is used for conveying out of bins or hoppers, the upper portion is simply an open trough, but in all other installations the unit is enclosed with sheet metal to prevent the aerated material from escaping. The cross section of the unit and the slope on which it is installed are subject to variation, depending on the type and quantity of material to be conveyed and the head room available. These and other problems that arise in connection with a particular installation are fully susceptible to engineering analysis and design.

The Airslide installations at the South River Sand plant were made in conjunction with a general improvement program carried out last year. There are five separate units in all, with a total length of just over 100 ft. All the units are 6 in. wide, and they are set on slopes ranging from a minimum of 4 degrees to a maximum of 6 degrees. The first section of the system (about 22 ft. in length) feeds pulverized sand to a bucket elevator which in turn discharges to a 12-ft. Sturtevant air separator. The fine product from the separator flows into a second Airslide which is about 39 ft. in length. A valve near the low end directs the flow either into a bucket or into a new concrete silo. The direct flow from this Airslide can fill about one-half of the silo, the remainder being filled by means of the bucket elevator and a spout through the roof. By opening a side discharge gate, about 3 ft. of the upper section of the same Airslide can also be used for feeding a bagging machine.

There are three open-type Airslides in the base of the silo for feeding to a bucket elevator used in bulk truck loading operations. The central conveyor discharges directly into the elevator boot, while the units on either side merely discharge into the central unit just before it passes through the wall of the silo.

Low-pressure air for the conveyors feeding into and out of the silo is supplied by a Roots-Connersville rotary blower, while the rest of the installation is supplied by a 1½-hp. Buffalo-Forge fan. In addition to

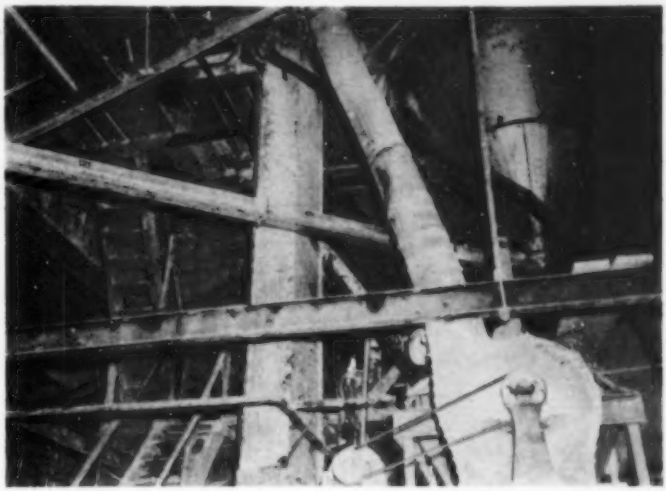
A general view of the plant. The building in the foreground houses the grinding and handling facilities described in this article.

The small blower shown here supplies air for several of the conveyors in this installation.

handling conveying needs created by the installation of the new silo, the Airslides have replaced screw conveyors in the plant aggregating about 40 hp. Although the units have not been in service long enough to show an impressive drop in operating and maintenance costs, the reduction in horsepower requirements and the wholesale elimination of moving parts are bound to result in cost reductions. Since all flange joints are tightly sealed with a special rubber cement, there is a notable improvement in dust conditions—always a serious problem in silica grinding operations. The sections of conveyors used in the South River plant are relatively short, but the system has been used successfully for runs up to 200 ft. in length, and for capacities up to 225 t.p.h.

The South River Sand Co. started its operations in 1925, and for a number of years produced only asphalt sand for use in road work. During this period the entire area of the deposit above the water table was worked over with shovels. Now the material is being recovered under water with a 75-hp. Morris centrifugal pump mounted on steel pontoons. This direct-driven unit has an 8-in. suction and a 6-in. discharge, and it is currently pumping from depths of 20 to 25 ft. below the water surface. Eight-in. diameter sections of spiral-welded pipe, joined together by flexible hoses and supported on pontoons, connect the pump and the 500-ft. pipe line to the washer.

There the mixture of sand, water, mud, clay, and debris is discharged into a 48-in. by 20-ft. Lewistown Foundry trommel. Material rejected by the 3/16- by 15/16-in. perforations in the trommel shell drop onto an 18-in. belt conveyor which discharges into a waste pile. The throughs are flumed to two rotary scoop-type washers in which the sand settles out and is removed by scoops, while the clay and mud overflow to waste. The scoops discharge onto a long 30-in. belt conveyor equipped with a mechanical tripper by means of which the sand is distributed over a stockpile. Here the remaining surplus moisture drains off

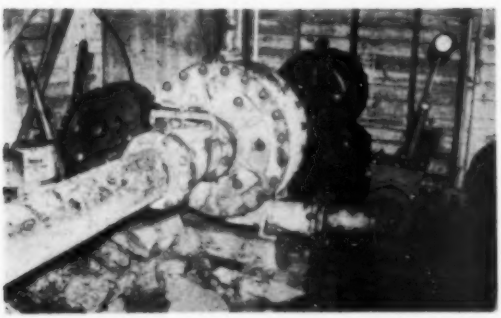


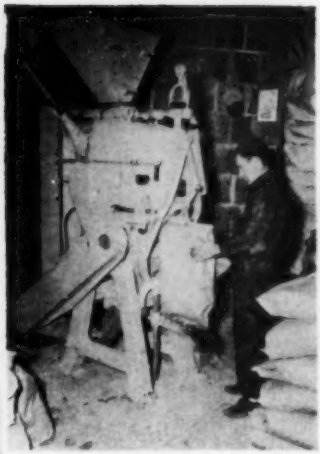
Fine material from the 12-ft. air separator at the upper right flows through a 39-ft. long section of Airslide into the storage silo.

Right: The Pump which recovers sand from the river is mounted on steel pontoons.

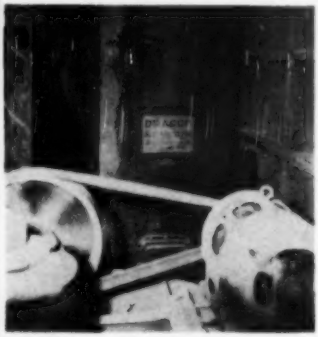
Below, left: The direct-driven 75-hp. centrifugal pump has an 8-in. suction and a 6-in. discharge.

One of the ball mills used to grind the material to either 98 per cent or 85 per cent minus 200-mesh. This unit is 6 ft. in diameter by 22 ft. in length.





One of the single-spout packing machines used for bagging blasting sand and ground silica.



Dust collectors are connected to the discharge ends of the two ball mills.

Bulk shipments of ground silica are made with this 20-ton covered trailer.

before any further processing is done.

Sand is recovered from the stockpile by a slack-line cable which discharges into a hopper mounted over a 24-in. belt conveyor, the latter delivering the material to a 5-ft. diameter oil-fired rotary dryer. The dried sand is elevated and discharged into two screw conveyors, each of which feeds a double-deck shaker screen. Rejects from the top deck are delivered to a retaining bin for mill feed, while the other two fractions are stored in separate silos for bagging as No. ½ and No. 1 grade blasting sand. A St. Regis single-spout bagging machine is used for packing the two grades of blasting sand in 100-lb. paper bags, which are stacked on pallets and handled subsequently with a Cleveland Automatic fork truck.

In the mill proper the pulverizing is done with two ball mills, the larger unit a 6- by 22-ft. Traylor. Both mills are fed by screw conveyors through the trunnions. Either 98 percent or 85 percent minus 200-mesh ground silica can be produced by adjusting the 12-ft. Sturtevant air separator. Depending on the fineness to which the material is ground, output of the two mills ranges from 675 to 720 bags (100-lb. capacity) per 8-hr. shift.

Dust in the grinding circuit is controlled by two Dracco collectors which draw on the discharge ends of the two ball mills, placing the entire system under a slight vacuum. The finished product is shipped both in bags and in bulk trucks, most of the material going to Johns-Manville plants in the United States and Canada for use in the manufacture of Transite sheeting and sewer pipes. The iron content of the sand prevents its use in glass manufacture.

The rail siding which serves the South River plant is located about a mile from the company's property. Palletized bagged materials are hauled to the siding by a flat-bed truck, and loaded into box cars by means of a 3000-lb. capacity Clark lift truck which is transported on the flat-bed. Truck shipments in bulk are now handled with a new 20-ton Gramm tractor-trailer unit which has three covered hoppers. This bulk carrier can be loaded from the plant silos in 15 to 20 minutes, using only the middle hatch. Unloading at customers' plants is by means of a screw conveyor located beneath the hoppers. It takes about an hour.

Officers of South River Sand Co. are Marcus S. Wright Jr., president; Marcus Wright III, secretary and general manager; and Henry A. Sennhauser, vice-president. George Mather is superintendent of the plant, and Walter O. Wright is assistant superintendent in charge of maintenance.

Men of the Industry

(*From page 88*)

of the Durable Goods Industries Committee in 1934 and 1935, chairman of the Noise Abatement Commission of New York City in 1929, and director of the New York World's Fair in 1939 and 1940. He is a member of the Chamber of Commerce of the State of New York, the National Association of Manufacturers, the National Institute of Social Sciences, and the American Economic Association.

New Oyster Shell Dredge

(*From page 89*)

Goodrich 18-in. suction hose. Pumping is done by an American Manganese Steel Amsco pump with an 18-in. intake and a 16-in. discharge. A 12-in. pump of the same make supplies the water for the shell-washing operation. Barges which carry the cleaned shell to the plant are positioned alongside the dredge with a Stephens-Adamson car puller.

The dredge is powered with a GM diesel engine rated at 900 hp. at 750 r.p.m. An Electric Mfg. Co. generator driven by a 300-hp. Chicago Pneumatic Tool Co. diesel engine provides emergency power in the event of a main engine failure.

The dredge was built by the Marine Division of the Maxon Construction Co. Inc., Tell City, Ind.

A fire set off by a blowtorch caused damage estimated at $2,000 to the asphalt plant of the Brannan Sand & Gravel Co., Denver, Colo.

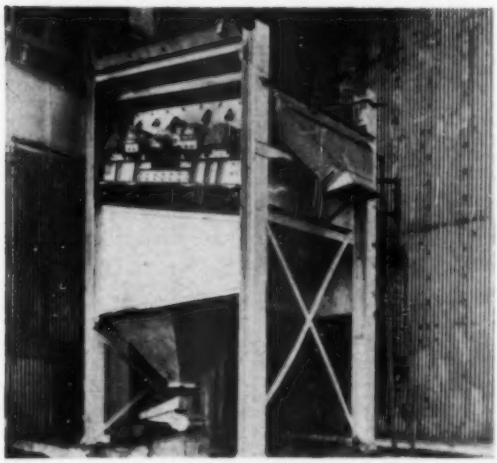
Metallic Aggregate— Team-Mate of Concrete In All-Purpose Floors

WHERE concrete is used for industrial and commercial floors, producers of stone aggregate have found a good ally in aggregate made from specially processed iron. Ordinary concrete floors finished with a dust coat of metallic aggregate produce the best and most economical floor for a wide range of uses, according to the experience of many owners.

The life of a concrete floor depends primarily on two basic characteristics — high compressive strength and a thick ductile surface. Ordinary concrete floors, even those with high compressive strengths, show rather rapid surface deterioration when subjected to the impact and abrasion of heavy traffic. The problem of building durable floors therefore appears to be chiefly one of providing a sufficiently thick surface with ductile characteristics.

Extensive tests have shown that a concrete floor in which enough metallic aggregate has been embedded to make an "armored" surface about one-eighth inch thick, will wear from four to ten times longer than one made of plain concrete.

Until 1937 the embedment of a sufficiently large amount of iron, or other metals possessing suitable ductility, into a low water-cement ratio concrete presented a practical difficulty. When the concrete surface was of the right consistency to produce the necessary strength, it was too stiff to permit working the required amount of iron into the surface. In that year, however, The Master Builders Company of Cleveland, O., discovered that when their cement-dispersing agent calcium lignosulphonate was combined with metallic aggregate, this difficulty was overcome. Utilizing this discovery, the company developed a product known as "Masterplate." The metallic aggregate used in "Masterplate" is processed in two modern plants, one in Buffalo, N. Y., and the other in Toronto, Ontario. The Buffalo operations are covered in this report.

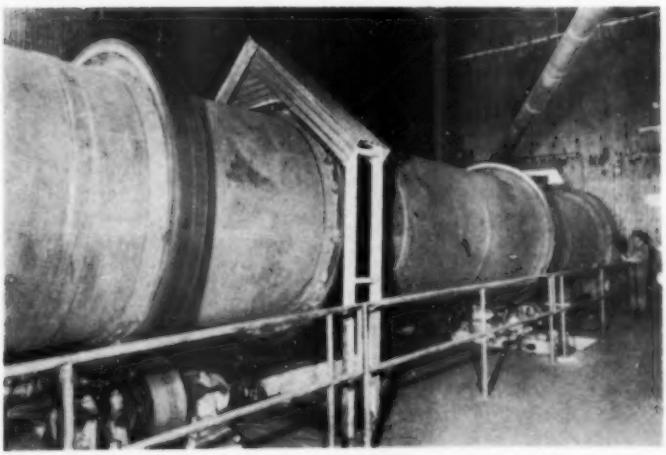


• Cast-iron borings are here given a preliminary screening before entering the plant.

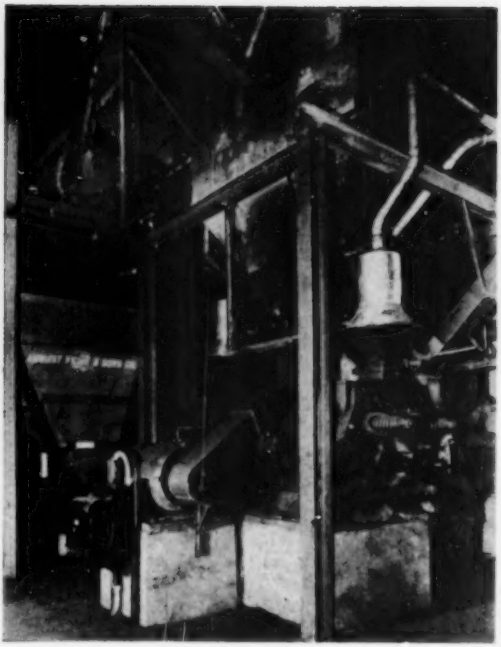
Raw material is made up of selected cast-iron borings which are given a preliminary screening before entering the plant. Once inside the plant, the metal is never again exposed to the weather, thereby preventing its deterioration by oxidation. The rough screened material is fed into a rotary kiln where oil, grease and other combustible materials are removed. Complete removal of oil makes the iron particles readily wetted by water, thereby insuring bonding between the metal and the cement.

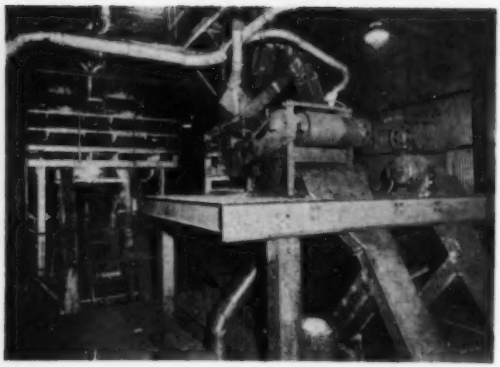
Oil-free metal is conveyed from inside storage bins through a series of grinding mills, where it is reduced to required sizes. The ground material is run over magnetic separators, where non-ferrous particles are removed. This step is highly important, since non-ferrous metals react with calcium hydroxide, formed during the setting of concrete, to produce hydrogen. Free hydrogen in concrete causes blisters in the surface of the floor which break and form pits under the impact of traffic—the first step in floor disintegration.

Two parallel banks of classification screens separate the metal into size ranges and deposit it in hopper bins. Calibrated feeders, electrically operated, recombine the material according to scientific size-grading. Size-grading of iron particles im-



• Rough-screened material is fed into this automatically-controlled rotary kiln where oil, grease, and other combustible impurities are removed.





• Nonferrous material is removed in this magnetic separator.

• Left: The oil-free material is ground to required sizes in this mill.

• Pure iron aggregate of proper gradation is combined with a cement-dispersing agent and packed in 100-lb. bags.

portantly influences the quality of a floor surface, just as size-grading of an aggregate is a determining factor in producing good concrete. Sieve analysis of Masterplate aggregate reveals that 2 to 6 percent is retained between No. 4 and No. 8 sieves, 15 to 25 percent between No. 8 and No. 16 sieves, 20 to 30 percent between No. 16 and No. 30 sieves, 20 to 30 percent between No. 30 and No. 50 sieves, 4 to 8 percent between No. 50 and No. 100 sieves, and 2 to 4 percent passing No. 100 sieve.

After grading, the metal is combined with the proper amount of calcium lignosulphonate (cement-dispersing agent) and packed in 100-lb. bags.

One pound of Masterplate will surface one sq. ft. of floor to a thickness of about ⅛ in. In addition to its wear resistance, Masterplate iron-clad floors are said to be spark- and corrosion-resistant, static-disseminating, and non-dusting. Masterplate is available in eleven colors and uncolored.

P.C.A.'s New Laboratories

(*From page* 70)

all equipment was inspected periodically to assure that extra water, hardened concrete, and foreign substances had no opportunity to enter the mixes.

Although the new laboratories are clearly the headquarters for all P.C.A. work in research and development, they are not by any means the only facilities which the association maintains for such work. In addition to active cooperation in certain research projects being carried on in engineering colleges, and by private and governmental agencies, the association maintains numerous field exposure laboratories through the United States, and has a staff of fellowship scientists at the National Bureau of Standards in Washington, D. C.

Patentable inventions resulting from association research are immediately dedicated to the public, and all discoveries and new developments are promptly made available to all cement users. Along with the expanding research and development program, the association plans to step up its excellent educational program, to the end that there will be little lag between the findings of the new laboratories and the actual field application of such findings.

The association and the cement companies which support it may well take pride in the new laboratories, for they are unquestionably among the finest that American ingenuity could create. More particularly, we believe, they can and should take pride in the fine traditions of public service in which the new facilities have their origin, and to which they are so clearly dedicated.

Third of the Yazoo Gravel Company's operations to be opened is the plant near the intersection of the G. M. & O. and Southern R. R. tracks near Tuscaloosa, Ala. The firm, headed by J. H. Whigham, president, also operates 2 other plants in the vicinity.

personal mention

After 31 years of active service as president of the Boston Sand & Gravel Company, Cambridge, Mass., PAUL P. BIRD is retiring from the duties of this post.

Succeeding Mr. Bird as president is DANIEL J. BOYLAN, former treasurer of the firm, who has also been identified with the dredging industry.

Other officers of the company are D. D. REYNOLDS, vice-president and secretary, and CHARLES M. CORNELL, vice-president.

V. O. Burkhalter

VERNON O. BURKHALTER has been appointed assistant operations manager of the Building Products Division of Great Lakes Carbon Corporation. He will be in charge of all Eastern Division operations of the company. This includes the Permalite lightweight aggregate plant at Linden, N. J., and the Great Lakes Fire-Safe Insulation plant at Easton, Pa.

Mr. Burkhalter is a graduate metallurgical engineer and has had 16 years of production management experience. He was on active duty with the U. S. Army from 1941 to 1946. Mr. Burkhalter will have headquarters at Linden, N. J.

Calaveras Cement Company has appointed GEORGE ELLIOTT special salesman for the company's recently re-introduced White Portland Cement in the 11 Western states. He will headquarter in San Francisco.

ERNEST ROHR will succeed Mr. Elliott as company representative in the Fresno area. CHARLES H. LAUGHLIN has been appointed sales representative in Modesto.

WALTER M. MANNING has been appointed assistant district sales manager of the Pennsylvania-Dixie Cement Corporation at Des Moines, Ia., effective February 1. The announcement was released by O. W. Severence, district sales manager.

J. H. SETINSKY, who has been in charge of manufacturing for the Flintkote Company for several years, was recently named a vice-president of the firm. Mr. Setinsky joined Flintkote as an executive of its Pioneer Division in Los Angeles in 1944.

A. J. LITTLE, formerly superintendent of the Bay Bridge plant of the Medusa Portland Cement Company was recently promoted to the post of works manager.

To assume the former duties of Mr. Little, HENRY KREBS, former assistant superintendent of the Toledo plant, has been transferred to Bay Bridge as the new superintendent.

EDWIN S. GUTH has retired from his duties as vice-president in charge of operations for the North American Cement Corporation of New York City. Mr. Guth has been associated with North American Cement and its predecessor companies since 1915. He continues to serve the firm in the capacity of consultant.

New managers at four plants were named recently by the National Gypsum Company.

KEITH W. WAUGH was transferred from Bellefonte, Pa., to succeed JAMES D. KERR, veteran manager of the National City plant, who has resigned. HAROLD E. GUSTAFSON, superintendent of development at Bellefonte, was named Mr. Waugh's successor.

LEWIS H. SEUFERT became manager of the company's No. 1 plant at Clarence Center, N. Y., and was succeeded by LLOYD MOORE as head of the Akron, N. Y., mill.

Mr. Waugh has been with National Gypsum for ten years and served during the war years as director of production at the Blue Bonnet, Tex., ordnance plant operated by the company. He became manager at Bellefonte in 1945. Mr. Gustafson for the past two years has been in charge of the $750,000 mine development which is still in progress there.

Mr. Seufert, with a background of more than 20 years' experience in the gypsum industry, served in many positions at the Akron, N. Y., plant before becoming manager there three years ago. Mr. Moore was mill foreman and master mechanic before being named to manage the plant.

obituaries

ROY LACY, a director of Southwestern Portland Cement Company and president of Pacific Clay Products Company, died on May 5 in a Los Angeles hospital after a brief illness. Mr. Lacy was 51 years of age.

In addition to his connections with nonmetallic minerals industries, Mr. Lacy was a director of the Lacy Manufacturing Company, the Oceanic Oil Company, and a Los Angeles bank. He was active in local and state industrial affairs and served on many civic improvement projects.

ARTHUR E. GIBBS of Wayne, Pa., retired Pennsylvania Salt Mfg. researchist and inventor of the Gibbs cell for the electrolytic production of chlorine, caustic soda and hydrogen from common salt brine, died on March 2 at Summerville, S. C. He was 74 years of age.

Mr. Gibbs was born in England and was graduated from Bristol University in chemical engineering. In 1903 he joined the Pennsylvania Salt Manufacturing Company at its plant at Wyandotte, Mich. He organized the first separate research and development department of Pennsalt while at the Wyandotte plant in 1908. Four years later the department was moved to Philadelphia under his direction. He continued as head of this activity and later served as technical director until his retirement in 1946.

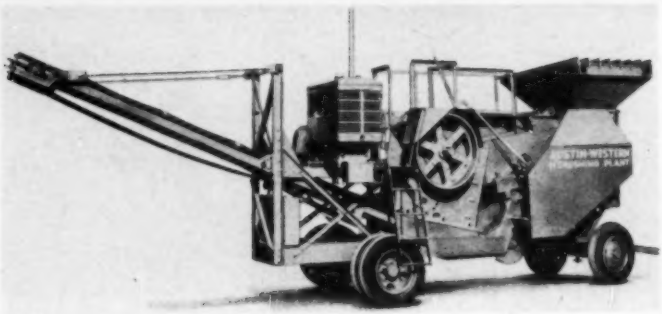
DIXIE L. POWELL, who was formerly associated with the Columbia Stone Company, Columbia, S. C., died recently at a sanatorium after an illness of several years. Mr. Powell was 67 years of age.

MORGAN E. BOWEN, 68, of Mankato, Minn., died in that city on March 27. He was at the time of his death a salesman for the Carney Cement Company of Mankato. In earlier years Mr. Bowen had owned and operated the Bowen Paper Company.

F. WILLIAM STOLLE, 77, owner of the Falling Springs quarry near Stolle, Ill., died of a heart ailment on April 4.

new machinery and supplies

PIT AND QUARRY



● Portable Crushing, Screening Plant

The new Austin-Western "61" is designed for fast, economical production of crushed rock or gravel where extreme accuracy in grading to size is not required. This compact, adaptable plant is said to be specially suited to the maintenance needs of town and county road departments. It can be quickly moved to any location. Simple design and sturdy construction keep operating and maintenance costs at the minimum. Manufactured by the Austin-Western Co., Aurora, Ill.

● Caps for Alemite Fittings

Elastoplastic caps are designed to fit over ⅝ in. alemite dot fittings to prevent dirt and other matter from lodging on the tip. This protection is particularly important for machinery which is run under dirty or dusty operating conditions, since abrasive matter can easily be forced into the fitting on the first lead-in shot of the grease gun and result in scored bearings.

Elastoplastic caps are made of black, flexible vinylite. They are easily applied and removed, and hold by friction fit. They are not affected by oils, grease or gasoline. Manufactured by the S. S. White Dental Manufacturing Company, Plastics Division, 10 East 40th Street, New York 16, N. Y.

● Power Shovel

A new Lessman front-end power shovel is said to have many features which obviate bulky equipment for loading the shovel under ordinary conditions. The design permits locking the tractor brakes and operating lifting arm and crowder arms to fill the shovel.

According to the manufacturer, the crowder arms are effective in any position from 15 in. below wheel level up to approximately 7 ft. high. In any of these positions the crowder arm will have full swing with the pressure of 14,000 lbs. on the crowder arms alone. The load can be retracted into a very close carrying position and carried at any height from 1 in. above the ground (or less) up to tractor height. Hazards of tipping and teetering, usually present in long-armed units, are said to be eliminated.

The lifter arms can be extended to any height suitable for unload-position, and the crowder arms can be extended for a reach up to 48 in. away from the tractor, at which distance it will handle full capacity without tipping. Unloading can be accomplished in any position from the ground to the highest point, next to the tractor or 48 in. from the tractor. When the shovel is in loading position, it automatically locks in place, tending to eliminate strain on the cylinders. It can be unloaded at a height of over 8 ft. under the shovel bit after it is dumped.

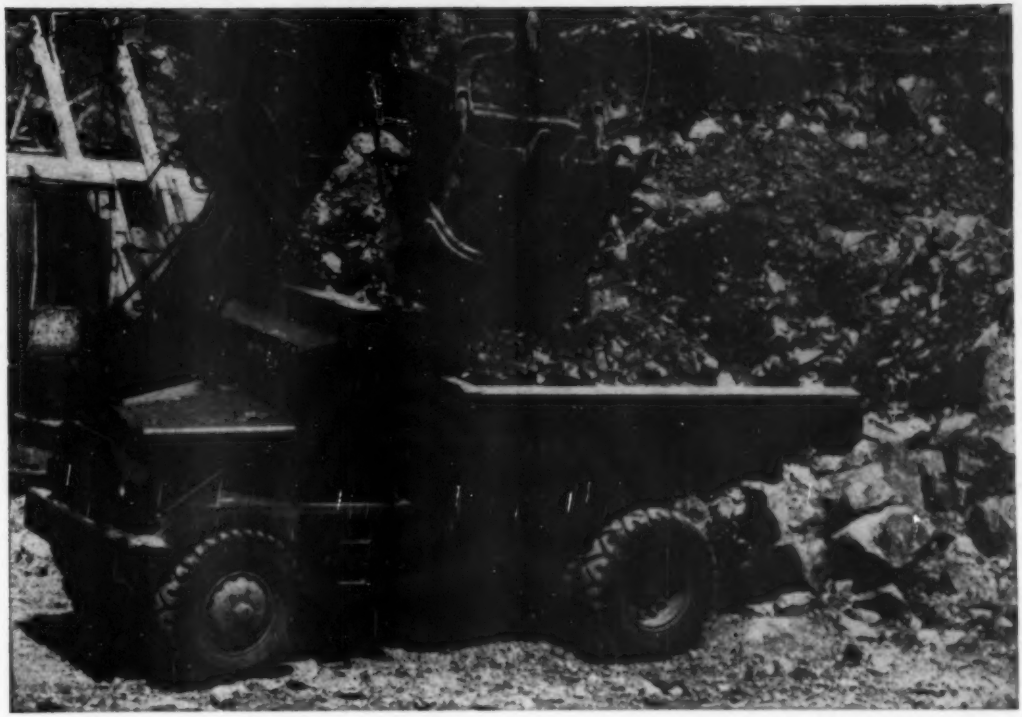
● Vest-Pocket Rule

Pickett & Eckel, Inc., 5 S. Wabash Ave., Chicago, Ill., announce their 22-scale vest-pocket log log slide rule, Model 600. It is described as "dimensionally stable," with "needle-sharp graduations." The light metal of which it is made is said to insure retention of accuracy.

The vest-pocket model is said to bear the 22 identical scales of its larger counterpart, a 10-in. rule.

The Model 600 is 1-3/32 in. by 6 in. by 3/32 in. in size and weighs 2 ounces. An instruction manual by M. L. Hartung is provided with each rule.

B.F.Goodrich



BFG users report: Continued savings —thanks to double bruise protection

B. F. GOODRICH *Universals* were reported by one operator to be in good condition after daily quarry service for over 21 months. Another operator reports over 4500 service hours from Universals against only 1600 hours from another make in identical service. Still another report told of tires that were still "young" at 3200 hours and probably good for thousands more. These actual user reports spotlight the great difference between various makes of off-the-road tires.

When *results* are measured, BFG tires always stand high. There are many reasons for the continuing top performance of B. F. Goodrich tires. For example, notice the tread on the Universals in the picture above. It's designed to give traction both ways. More than that, it is made of specially compounded rubber . . . armor against sharp rocks and other tire killers.

Also, BFG tires have double bruise protection in the form of a *double nylon shock shield* . . . layers of nylon cord built between the tread and the body plies. Under impact, the strong, elastic nylon shields the cord body. And there are two shields for double protection!

Only B. F. Goodrich gives you the added protection of the nylon shock shield; the added savings from (1) longer tire life (2) increased bruise resistance (3) less danger of tread separation (4) more recappable tires. Nylon shock shield costs no extra—you pay no premium.

There's a specially designed *BFG off-the-road tire for every need. See your B. F. Goodrich dealer or call *The B. F. Goodrich Company, Akron, Ohio.*

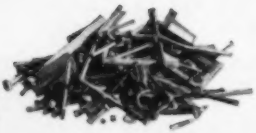
Typical example: New ALL-NYLON tire for tough construction projects, quarry work, strip mining, etc. In all tests not a single tire blew out, not one flex break occurred!

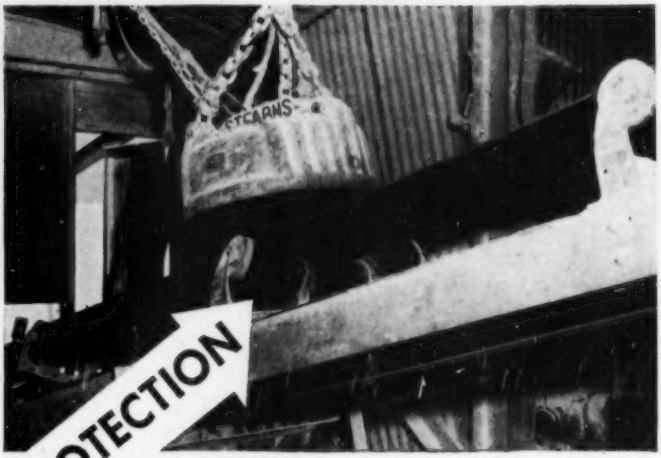
REMOVE TRAMP IRON

WITH *Stearns*

SUSPENDED MAGNETS

LOWEST COST WAY





PROTECTION

SAVES MONEY!

Here's the economical way to protect crushers, grinders, pulverizers and other vital equipment — use a STEARNS Suspended Magnet over your conveyor belt or head pulley. This STEARNS Circular Suspended Magnet is one of two installed at the National Gypsum plant at Savannah, Ga., to remove all tramp iron before the rock enters the crushers.

You can protect your machinery and purify your product the low cost, positive way. Eliminate all tramp iron with STEARNS Suspended Magnets — this means fewer repair bills on crushing equipment, fewer shutdowns and higher production.

Whether you are handling rock, slag, coal or ore, investigate STEARNS Suspended Magnets; they're easy to install and have low operating and maintenance costs. Write today for descriptive literature on both circular and rectangular suspended magnets.

Complete laboratory and testing facilities available for separation tests on your materials.

STEARNS Circular Suspended Magnet for inclined installation over head pulley.

Rectangular Suspended Magnets available in sizes and shapes to meet your requirements.

● 25-Ton Crane

Bay City Shovels, Inc., Bay City, Mich., announce a natural extension of their line of excavating and materials handling equipment with the development of a 25-ton crane. With two types of carriers, the 25-ton crane is available as Model 190-T61 "CraneMobile" (not shown) and Model 190 CW "CraneWagon" (see illustration).

The Model 190-T61 CraneMobile is mounted on a specially designed, three-

axle crane carrier powered by a separate heavy-duty 779-cu. in. displacement, automotive-type gasoline engine and equipped with 10—12:00x20 tires and Timken tandem rear axle unit with through worm drive. The main and auxiliary transmission provide 12 forward speeds up to 35 m.p.h. and three reverse speeds. The front axle is spring mounted, whereas the rear dual axles are arranged with strongly reinforced equalizer beams or rocker arm and parallel torque rods to equalize weight distribution and insure correct alignment. Air brakes are furnished for all wheels, and an emergency brake is mounted on the drive shaft. Sturdy car channels adequately reinforced throughout the entire length form side members of the frame and are joined together with heavy channel front bumper, cross bracing, cross member supports, outrigger support boxes and mounting plate. The outrigger beams, fore and aft of rear axles, are of the sliding type.

The 190 CW CraneWagon is a self-propelled one-engine crane, mounted on a 6-wheel carrier equipped with 12—12:00x20 tires. Air brakes are furnished on all wheels. The carrier frame is all-welded construction using heavy section I-beam with outside flanges boxed in for side frames. Deep section cross members, reinforced rigid type outriggers, forward and rear, together with reinforced mounting plate, join the frame together into a strong stable unit. The front axle is of the oscillating type and is equipped with hydraulic steering cylinder. Drive is from reversible travel clutches and two-speed transmission in the crane upper to two-speed transmission in the carrier through a vertical

4 AT SPRINGFIELD SAND & GRAVEL CO. (ILL.)

EAGLE WASHERS ASSURE PREMIUM MATERIALS!

1 All Material is pumped to "field" dewatering plant by means of Eagle Water Scalping Tank which removes excess water — concentrated material flows to Eagle Double Screw Unit which deposits washed pit run material on belt for conveying to processing plant.

2 Material passing vibration screen flows to an Eagle Double Screw Fine Material Washer-Classifier-Dehydrator producing two gradations of clean sand.

3 An Eagle Single Screw Coarse Material Washer — Dewaterer turns out clean gravel, from top deck of screen.

4 An Eagle Single Screw Coarse Material Washer — Dewaterer processes buckshot or torpedo sand from second deck of screen.

What Eagle Screw Units are doing for Springfield Sand & Gravel Co.'s practical and profitable plant, they can do for you. Fine material units are retaining fines even below 150 mesh and reducing moisture content so that residual water offers no difficulty in bin storage or belt stockpiling. Adjustable long weir can be raised to retain fines, lowered to flow off fines. Eagle builds the broadest line, has the most installations, more years of experience. You can bank on Eagle. Ask for Catalog 47 on Washers — 150 on Water Scalping Tanks.

SINCE 1872 Progress...Service

EAGLE IRON WORKS

133 Holcomb Ave. • Des Moines, Iowa

THE EAGLE LINE

"Swintek" Dredge Ladders— Screw Washers — Log Washers— Dehydrators — Sand Tanks— Classifiers.

No Lazy Spots . . .

Here's the kind of efficient screening of materials that Seco Vibrating Screens are performing day after day, year after year. Seco's patented construction puts every inch of screen to work . . . there are no "lazy spots" to rob you of tonnages and profits. Get the whole Seco story. Send for Catalog #203, Dept. L.

Made only by Screen Equipment Co., Buffalo, N. Y.
In Canada: United Steel Corp., Toronto, Ont.

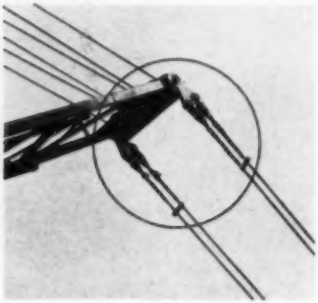
Seco distributors are located throughout the United States. Write for name of the one nearest you.

SECO

propelling shaft, providing four travel speeds in either direction. Power is then carried to a single reduction bevel gear differential which operates the jackshaft driving sprockets. Final drive on four rear wheels is through roller chain to wheel sprockets bolted to brake drum flanges. Wheel hubs and brake drums are Timken bearing mounted on stub spindles pressed into walking beams on either side of the frame. Controls for operating, steering, braking and transmission shifting are reached from operator's seat at any cab position.

● Cable Assembly

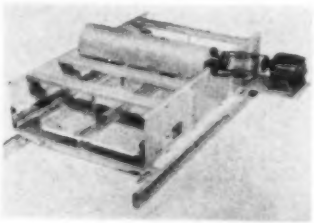
The Tiger brand cable assembly is an "exclusive development" of the American Steel & Wire Company, Rockefeller Bldg., Cleveland, which the manufacturer claims will effectively combat the most severe vibration on power shovels, drag-



lines, and cranes. The thimble design embodies an interwoven eye and open-end pendant which is quickly and easily interchangeable on standard equipment.

According to American Steel & Wire, the design dampens vibration, rather than concentrating it at one point, with the result that boom supports last longer and operation is made safer.

The new boom supports are said to be especially adaptable to installations where fatigue failures occur adjacent to sockets. They can be adapted to your present equipment, says the manufacturer, because essential dimensions such as pin diameters, distatnces beween ears, etc., are the same as for standard open-end closed sockets.



The Universal Vibrating Screen Company, Racine, Wis., reports design improvements in its 1950 models which are said to increase capacity and efficiency. Greater compactness in construction has been achieved, reducing space requirements for the new models.

Presenting the New

FEDERAL *Style LINER* SERIES

The Most Beautiful Trucks on the Road!

Here's the Truck . . .

THOUSANDS OF FLEET OPERATORS ASKED FOR!

In a nationwide survey, thousands of fleet operators confirmed the judgment and sound engineering back of the more than one hundred new and improved all-truck features built into the new Federal Style Liners . . . 30% greater strength . . . 60% greater vision . . . 100% greater accessibility . . . ultra smart styling . . . unrivaled beauty . . . massive appearance . . . extra wide and roomier cabs . . . unparalleled comfort . . . easier steering and new high standards of performance make these new Federals today's outstanding truck value. There is a large selection of Style Liner models . . . also a choice of several powerful high torque engines and wheelbases to economically master your hauling needs. Make a date with your Federal dealer now to drive a new Style Liner. It doesn't cost any more to own a new Federal—the truck that has everything.

FEDERAL MOTOR TRUCK COMPANY, DETROIT 9, MICH., U. S. A.

"I SAW MOTOR TRUCK HISTORY IN THE MAKING"

Says Lowell Thomas

Internationally known newscaster, writer and explorer.

Read his booklet describing the new Federal Style Liner trucks. Mail coupon below today for your free copy.

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More Proof Why
FEDERAL *Style LINER*
IS YOUR BEST TRUCK BUY!

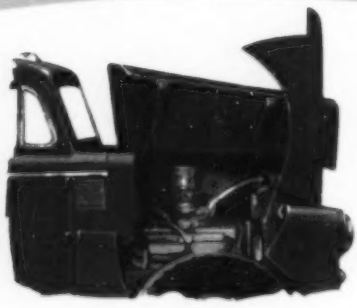
- ★ Longer, "smoother ride" front and rear springs for greater comfort—bigger payloads.
- ★ Rubber bushings in front springs and shackles provide quieter operation—longer spring life.
- ★ Heavy duty, wider track front axles for shorter turning radius.
- ★ Spring cushioned radius rod drive gives longer spring and axle life.
- ★ Built-in running boards with tool and battery compartments in step-wells for greater convenience.
- ★ Husky hypoid rear axles—the strongest ever built for the toughest handling jobs.
- ★ Pressurized cooling and increased radiator frontal area assures maximum engine performance.
- ★ Cabs have heavy duty chrome plated hardware. Doors are equipped with three heavy duty hinges.
- ★ Propeller shaft designed for maximum angle drive to rear axle. Shaft center bearing is rubber mounted for quiet, long life operation.
- ★ Big, sturdy brakes with wide lining area—stop quickly—operate cooler—last longer.
- ★ Powerful clutches with larger facing areas assure positive engagement—dependable service.
- ★ Heavy duty 4 or 5 speed transmissions of ample torque capacity for—quiet operation—easy shifting.

BIG, POWERFUL ENGINES

These husky, all-truck Federal engines are designed for maximum operating economy and dependable, long-life performance.

GREATER COMFORT, ROOMIER CAB

Seats accommodate three large men easily and are readily adjustable. Cabs are double insulated for all-weather protection.

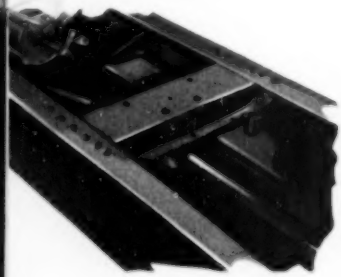


100% GREATER ACCESSIBILITY

New, exclusive "Swing-Lift" fender simplifies maintenance on engine, steering, front brakes, etc.—reduces down time—cuts repair costs.

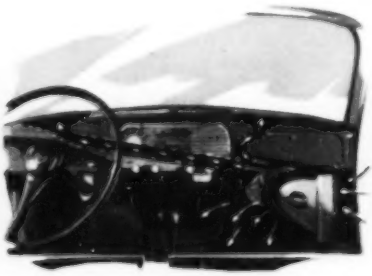
60% GREATER VISION

One piece, full width, bent safety glass windshield insures maximum visibility—eliminates distortion. Dual electric windshield wipers standard equipment.



30% GREATER STRENGTH

Massive, sturdy frame side rail dimensions substantially increased and cold riveted for maximum strength and durability.



ALL-WEATHER AIR CONDITIONING

Fresh air heater and defroster is available with cowl intake vent, thermostatically controlled for all-weather driving comfort.

ACCESSIBLE WIRING PANEL

Electrical wiring under cowl is readily exposed by opening a door in instrument panel. Wires are colored for easy tracing of circuits.

FEDERAL TRUCKS

● Special Conveyor Bulletin

The Barber-Greene Co. of Aurora, Ill., has published a new 40-page booklet describing its "Redi-Fab" series of sectional-truss belt conveyors. Briefly, this series was designed to simplify conveyor selection in the range most commonly used by the contractor and the aggregate producer. Therefore certain design factors have been fixed or standardized as follows:

Belt speeds are standardized at 300 f.p.m. The power units and drive transmissions are designed for the correct horsepower requirements when the conveyor is operating at 18 degrees and handling certain predetermined capacities.

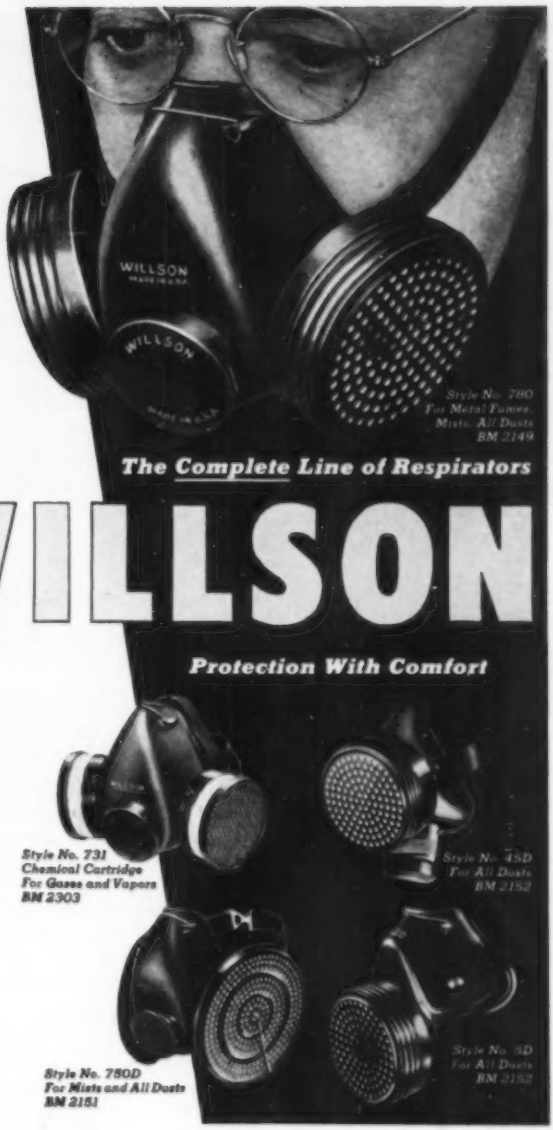
Experience has shown that many contractors and aggregate producers operate their conveyors at 18 degrees; therefore, the basic design and simplified selection tables have been built around this requirement. Even though the "first job" layout might permit operation at flatter angles, it is desirable to provide horsepower adequate for the normal operating angle on later set-ups. The Redi-Fab basic design provides for this typical usage.

● Mobile Flight Conveyor

Expansion of the Bonded Scale flight conveyor line has produced a wide range of mobile flight conveyors, mounted on rubber tires and welded steel undercarriage. With flight widths to 24 in., and flight height to 6 in., these conveyors will handle gravel, crushed stone and cinders, as well as chemical and agricultural products.

All-welded structural and sheet steel construction allows a strong, heavy-duty conveyor to be offered in the low price range. The steel flights are pulled by two strands of conveyor chain, and this chain is guided on both the loaded and return levels to maintain proper alignment.

The conveyors are available in a choice of electric, gasoline, or diesel power. A full range of chain speeds and variable speed control is offered. Manufactured by the Bonded Scale & Machine Co., Columbus 7, O.



The Complete Line of Respirators

WILLSON

Protection With Comfort

WILLSON*

Dependable Products Since 1870

*T.M. Reg. U.S. Pat. Off.

Here is the most complete line of Bureau of Mines approved respiratory protective equipment. It includes filter and cartridge type respirators which are effective against all dusts, mists, fumes and low concentrations of acid gases and organic vapors. Ease of breathing and comfortable fit assure a low fatigue factor. Choose exactly what you need from selector tables in our new catalog. Get a copy from your nearest WILLSON distributor or write direct to WILLSON PRODUCTS, INC., 102 Thorn Street, Reading, Pa.

NEW! *Time-saving flexibility that cuts man hours and drilling costs*

★ Self-propelled Tractair Mobildrill moves quickly to drilling location — has speeds up to 12 mph.

★ On this job a Mobildrill equalled a previous days work (hand-held drilling) in just two hours — that's really cutting costs!

LE ROI TRACTAIR *Mobildrill*

Compressor *plus* Wagon Drill... double-value in one self-contained unit

The unique and versatile Mobildrill consists of a Le Roi-Cleveland air-feed H10 drill mounted on a boom extending from the Tractair platform. Universal mounting and swinging boom give it wagon-drill flexibility for drilling at any angle to a depth of 20 feet.

Only one man operates the self-propelled Mobildrill. It's a "package" unit for fast, economical drilling on road jobs, in quarries, and open-pit mines. See your Le Roi distributor for complete details or write us for our new bulletin, just off the press, and also for an interesting on-the-job report that may save you money.

Experienced distributors everywhere give prompt service on the job!

T-11

LE ROI COMPANY

MILWAUKEE 14, WISCONSIN

New York • Washington • Cleveland • Birmingham
Milwaukee • Tulsa • Butte • San Carlos

● Bucket Loaders

Nelson Iron Works, Inc., Clifton, N. J., presents its model P-11 (wheel-mounted) and Q-11 (tractor-mounted) heavy-duty bucket loader. Both models are powered by a LeRoi 4-cylinder, 46 bhp. engine, with a Hercules DOOC 4-cylinder diesel optional.

Transmission is by an enclosed bevel gear power take-off mounted in the bell

housing. There are independent shafts for the elevator and tractiond rives and twin-disc clutches with an automatic relief clutch on the elevator drive. The chassis is hot-riveted and electrically welded.

Deep sides of the boom prevent spillage; and the swivel spout is turned from the platform. The boom is raised and lowered through a twin-cylinder double-acting hydraulic hoist.

Spiral feeders with renewable cast manganese teeth "pick before they shovel." The spirals (33 in. in diameter) are mounted on an 8-ft. footshaft supported in Timken roller bearings.

The elevator incorporates two strands of No. 102½ manganese steel bucket chain, 4.04-in. pitch, with ¾-in. high-carbon hardened pins and long attachment links spaced on 16-in. centers. Buckets are made of steel plate with an extra ¼-in. backing plate and cast manganese steel digging edges.

● Magnetic-Fluid Clutch

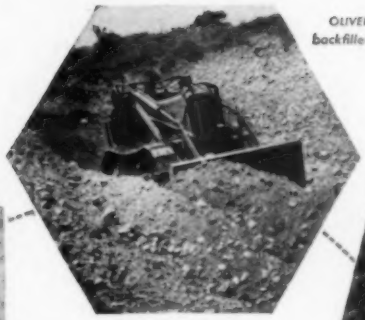
A liquid which can instantly change to a solid and then return to a liquid again is the basic feature of an improved magnetic-fluid clutch built by General Electric Co. Only 6 in. long and 6 in. in diameter, the device is capable of carrying enough power to lift one ton 1000 f.p.m.

It consists of two metal cylinders, each able to rotate independently on the same axis, and transmits rotary power from its source to its load. The cylinders are separated by a magnetic mixture of oil and finely-divided iron powder.

When the unit is energized, the fluid instantly solidifies, making a rigid connection between the two cylinders so that as one cylinder revolves, its motion is transmitted to the other.

Power can be applied to the load and removed from it easily by the clutch operator. Degrees of rigidity of the magnetic fluid can be obtained by regulating the current.

OLIVER HG Crawler Tractor with Ware Loader loading sand into truck.



OLIVER HG Crawler Tractor with Ware backfiller blade attached to shovel arms.

OLIVER Model "88" Wheel Tractor with Ware Boom handling cast iron pipe.

...take the "Load" out of Your Loading Problems!

Whatever your loading problem, the easy, economical answer is an Oliver Crawler Tractor or Oliver Industrial Wheel Tractor and Ware Front-End Loader.

These powerful tractors and the hydraulically operated loaders are easy to operate . . . easy on maintenance and operating costs. Lift and bucket are hydraulically controlled. Hydraulic control of bucket assures greater breaking-out action and full loads . . . prevents wasteful spillage. "Midsection" pivot allows longer reach of dumping position and distributes the weight advantageously over the tractor frame to minimize strain. The hydraulic rams are designed to take most of the shock loads, assuring longer life for both tractor and loader.

And, the tractor-loader unit can be quickly converted to backfiller, boom or lifting fork. Special buckets are available for coal, snow or humus loading. The hydraulic system can be used to power other equipment such as mowers, sweepers, etc., in combination with the loader. For all the facts, see your local Oliver Industrial Distributor, or write direct to:

OLIVER Model "88" Wheel Tractor and Ware Loader loading out gravel.

OLIVER HG Crawler Tractor with Ware Loader on ditching job.

THE OLIVER CORPORATION

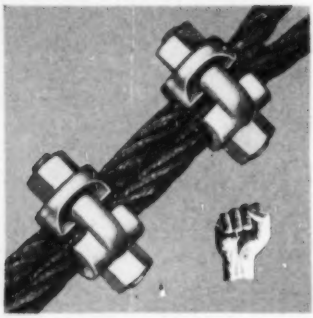
Industrial Division: 19300 Euclid Avenue, Cleveland 17, Ohio

A complete line of Industrial Wheel and Crawler Tractors

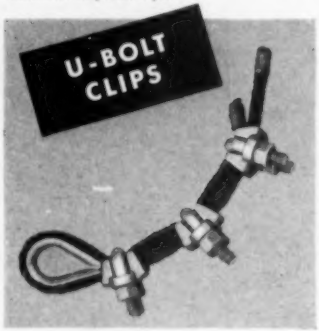
"THE SIGN OF EXTRA SERVICE"

You can SEE the difference!

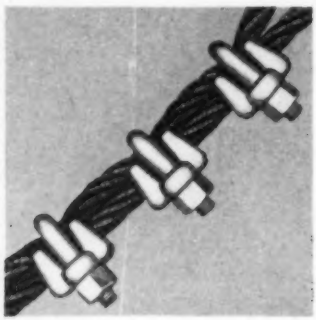
RIGHT FROM THE START. Laughlin "Fist-Grip" Safety Clips hold wire straight. No damage, no distortion. They *save* rope.



HIGHEST EFFICIENCY. In use, "Fist-Grip" Clips deliver 95% to 100% of the rated tensile strength of rope.



POOR BEGINNING. U-bolt clips pull wire rope into bowed shape when nuts are tightened, endanger safety. U-bolts *crush* rope.



FURTHER DAMAGE when in use. Note crimping between U-bolt clips when rope is under tension — leads to rope breakage.

Only Laughlin "Fist-Grip" Clips offer all these benefits

Won't crimp or crush — pre-formed or regular lay wire rope; leaves them full strength for safety and longer life.

Simple, easy to put on — saves time, manpower, can be put on faster with *any* type wrench.

100% foolproof — can't be put on backward.

Super grip — two clips do the work of three.

Extra strength and safety — only type clip where entire clip, including bolts, is drop-forged.

Distributed through mine, mill and oil field supply houses. Write for Laughlin Catalog #145 for complete data on industrial fittings. The Thomas Laughlin Company, Dept. 3, Portland 6, Maine.

LAUGHLIN

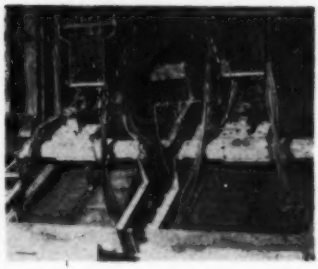
THE MOST COMPLETE LINE OF DROP-FORGED WIRE ROPE AND CHAIN FITTINGS

● Screen Heater

The Hannon electric screen heater, a product of F. R. Hannon & Sons, Canton, O., is applicable to any woven wire vibrating or gravity-type screen up to 8 ft. long or 4 ft. wide. (It cannot be used with punched screens.)

Easily applied to woven wire screens 16 mesh or smaller, this heater reportedly prevents blinding caused by clay bridging or filling the openings. It thus increases the screen capacity and grinding efficiency.

Heating the screen reduces the moisture content of the clay as it passes over the mesh. Consequently the clay passes more readily through the screen. "Beating" to clean the screens is not necessary, and the percentage of clay passing through before returning to the wet pan is considerably higher. It is claimed that screen life is increased 3½ to 7 times.



The heater is easy to install, and the current cost at 3 cents per kw.-hr. is less than 50 cents per hour for a 4- by 5-ft. screen. The transformer cannot be damaged by accidental short circuits.

This heater operates on 220 or 440 volts, 60 cycles. Temperatures may be adjusted for different kinds of clay.

● Mechanical Gold Pan

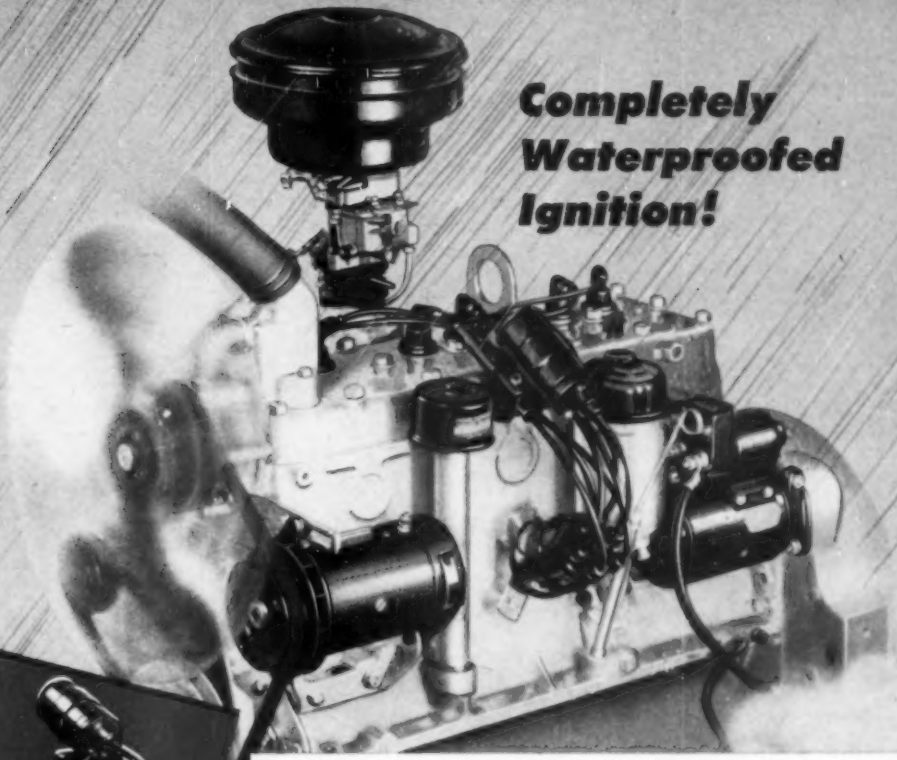
To the many sand-and-gravel producers who have (or think they have) gold in their deposits, the Denver Equipment Company offers its mechanical gold pan, said to have a capacity of 20 cu. yds. per day, as compared with 1 cu. yd. by hand panning methods.

Differences in specific gravity between gold, gold-bearing black sand particles, and quartz particles of placer gravel make conditions favorable for separation in the mechanical pan. The device duplicates the hand panning motion by means of a steel yoke and saddle connected to an enclosed rotating ball-bearing eccentric. This gives a positive oscillating motion (240 complete oscillations per minute) which, with the water, settles the gold values. Power is supplied by a 4-cycle gasoline engine, which also drives a pump, furnishing water for washing the gravel and sand.

Mercury coating on the top pan, which is furnished with a heavy copper plate, will amalgamate free gold; the middle and bottom mating pans insure additional recovery of remaining values. The Denver Equipment Co., 1400 Seventeenth St., Denver 17, Colo.

NOW-ANOTHER FIRST

FOR CHRYSLER INDUSTRIAL ENGINES!



Completely Waterproofed Ignition!

• Distributor and coil are of waterproof construction. All wiring terminals are protected by rubber caps.
• Plated steel spark plug covers and neoprene synthetic rubber cap for terminal end protect insulators from splashed water, oil, dust or dirt.
• Neoprene-covered spark plug wiring sheds water—will not absorb moisture.

IN WEATHER which causes other engines to cough, sputter, stall or foul out, a Chrysler Industrial Engine *keeps right on running.* You won't lose production time—drying out the ignition system of a Chrysler—*even if you turn a hose on it!*

Coil, distributor, wiring harness, spark plugs are *waterproofed* to prevent moisture from causing short circuits.

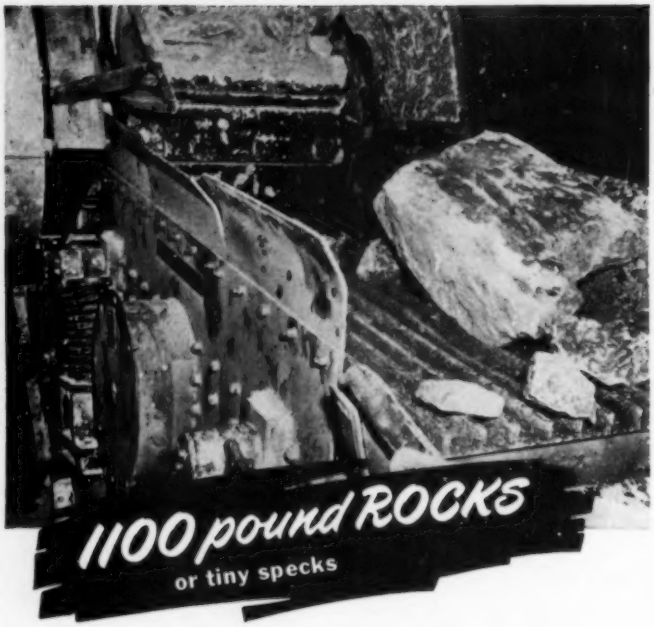
Waterproof ignition is typical of the many extra values you get in a Chrysler Industrial Engine. Extra values which explain why Chrysler Industrial Engines outperform, out-last and out-economize similarly rated engines on all sorts of jobs everywhere. Yet, thanks to Chrysler mass production economies you can buy a Chrysler Industrial Engine for *less money*—and get quick service *anywhere.*

See your dealer or write us.
Industrial Engine Division, Chrysler Corporation, Detroit 31, Michigan.

CHRYSLER

Industrial Engines and Power Units

HORSEPOWER WITH A PEDIGREE



. . Hewitt-Robins Vibrating Screens Process Them All!

Take a look at that big brute of a machine. It's a vibrating screen—a Hewitt-Robins Heavy Duty Scalper.

The big rock you see on its deck is a 3 x 2 x 1½ lump of ore weighing about 1100 pounds. The Scalper handles loads like this at 1000 tons an hour. Yet, it absorbs those loads—and its own vibration—so completely that a coin placed on edge on the base beams will stand up without toppling over *while the machine is running!*

The same company that makes this big brute also makes a small screen called a Ceramic Slip Lawn. This lawn is so precise in action, so effective in operation, that it finds and removes tiny specks of impurities—about ½ pound in every ton of material—from clay slip for pottery plants.

Think of that range—from 1100 lb. rocks to tiny specks! It's the best proof of all that Hewitt-Robins can satisfy *your* vibrating screen demands!

Just look at these facts: Hewitt-Robins originated the circle-throw principle for vibrating screens. Hewitt-Robins created the elliptical throw. Hewitt-Robins pioneered in both 4-bearing and 2-bearing vibrators. Hewitt-Robins introduced the full-floating principle of vibration-absorption.

Whatever you want in vibrating screen equipment, you can *safely* rely on Hewitt-Robins. Tell us your needs; we will supply the answer. Write to Robins Conveyors Division, 270 Passaic Avenue, Passaic, N. J.

HEWITT-ROBINS
VIBRATING SCREENS

HEWITT-ROBINS HR **INCORPORATED**

BELT CONVEYORS *(belting and machinery)* • BELT AND BUCKET ELEVATORS
CAR SHAKEOUTS • DEWATERIZERS • FEEDERS • FOAM RUBBER PRODUCTS
FOUNDRY SHAKEOUTS • INDUSTRIAL HOSE • MINE CONVEYORS • MOLDED RUBBER GOODS
RUBBERLOKT ROTARY WIRE BRUSHES • SCREEN CLOTH • SKIP HOISTS • STACKERS
TRANSMISSION BELTING • VIBRATING CONVEYORS, FEEDERS AND SCREENS

● Jeep-Mounted Drill

Mobile Drilling Company, Inc., of Indianapolis, Ind., has just brought out a new drilling unit, "Model B-35". Stronger and more powerful than the

"B-27", the new drill has many additional advantages. Weighing less than 1,000 lbs. and usually jeep-mounted, taking its power from the power takeoff, it will auger holes from 3 to 12 in. in diameter. One side is open the entire length of the carriage, permitting easy installation and removal of the augers. The transfer case guides are new improved extended roller chain.

With hydraulic controls mounted at the finger tip of the operator, this becomes truly a one-man operation. The drill can be converted from a vertical to a horizontal position in a matter of minutes by a unique turn-table. This allows the rig to be used for augering holes prior to the blasting of overburden. The B-35 has lost nothing in adaptability and flexibility, even though it is larger than the B-27 model.

As a prospecting drill, it can auger holes, without the use of water, to a depth of 100 ft. through hard pans, shales, and soft stone formations. This drilling rig will operate even in the most mountainous terrain. Both the B-35 and the B-27 mobile drills are approved by the Willys-Overland Company and available through all jeep dealers.

● Double-Duty Plant

Recently developed by Iowa Manufacturing Company, Cedar Rapids, Ia., the new "Rock-It" crushing and screening plant is a double-duty plant that will replace two single units. Designed specifically for the agline, chip and road stone fields, the "Rock-It" produces crushed stone or aglime, or a percentage of both, in one operation. Capacities range from 60 to 80 t.p.h.

Simple design and compact construction make the "Rock-It" a highly portable plant. The only parts to remove to meet highway transportation requirements are the charging hopper and delivery conveyors. Other features include accurate gradation of the finished product, centralized controls, low feeding height for shovel feed, anti-friction construction throughout.

Made up of standard "Cedarapids" units, the "Rock-It" plant consists of a 24-in. by 8-ft. apron type feeder and charging hopper with grizzly; a newly

COLONIAL Stone and Sand Co., Inc. *uses* TELSMITH®

Scalping-Crushing

Washing-Sizing

TELSMITH Equipment in this Plant

Two 4′ x 12′ Two-Deck Pulsator Scalping Screens

Two 48″ Gyrasphere Crushers

Eight 4′ x 10′ One-Deck Vibro-King Dry Screens

Three 4′ x 14′ Two-Deck Vibro-King Wet Screens

Three 60″ x 9′ Super Scrubbers

Six 4′ x 12′ One-Deck Vibro-King Wet Screens

Nineteen 24″ x 15″ Special Tunnel Gates

Fourteen Field and Plant Conveyors—18″, 24″, 36″, 42″ wide; total length about 3000′

● COLONIAL of NEW YORK CITY and LONG ISLAND own and operate this modern all-steel sand and gravel plant. Designed in close co-operation with Telsmith engineers, plant layout and machinery is of the latest type, properly co-ordinated and balanced for flexibility and capacity, with interlocking features to assure smooth, trouble-free operation.

Production averages about 600 cu. yds. per hr., making four kinds of material: minus 1¼″ plus ¼″ crushed and uncrushed gravel mixed, minus ¼″ plus ⅛″ grits, minus ⅛″ sand, all washed; and minus ⅛″ dry sand. Most of the material is loaded into barges for shipment to New York. A truck-loading plant handles local demands.

In Scalping-Crushing Unit, two 2-deck Pulsators are in closed circuit with two 48″ Gyrasphere Crushers which reduce all gravel to minus 1¼″. In the Dry Screening Plant eight special Vibro-King Dry Screens produce the dry sand. Washing-Sizing Unit has two batteries of Vibro-King Screens—two-deckers ahead, with single-deckers following the Super Scrubbers. Get Bulletin 266 describing Telsmith Complete Plant Service.

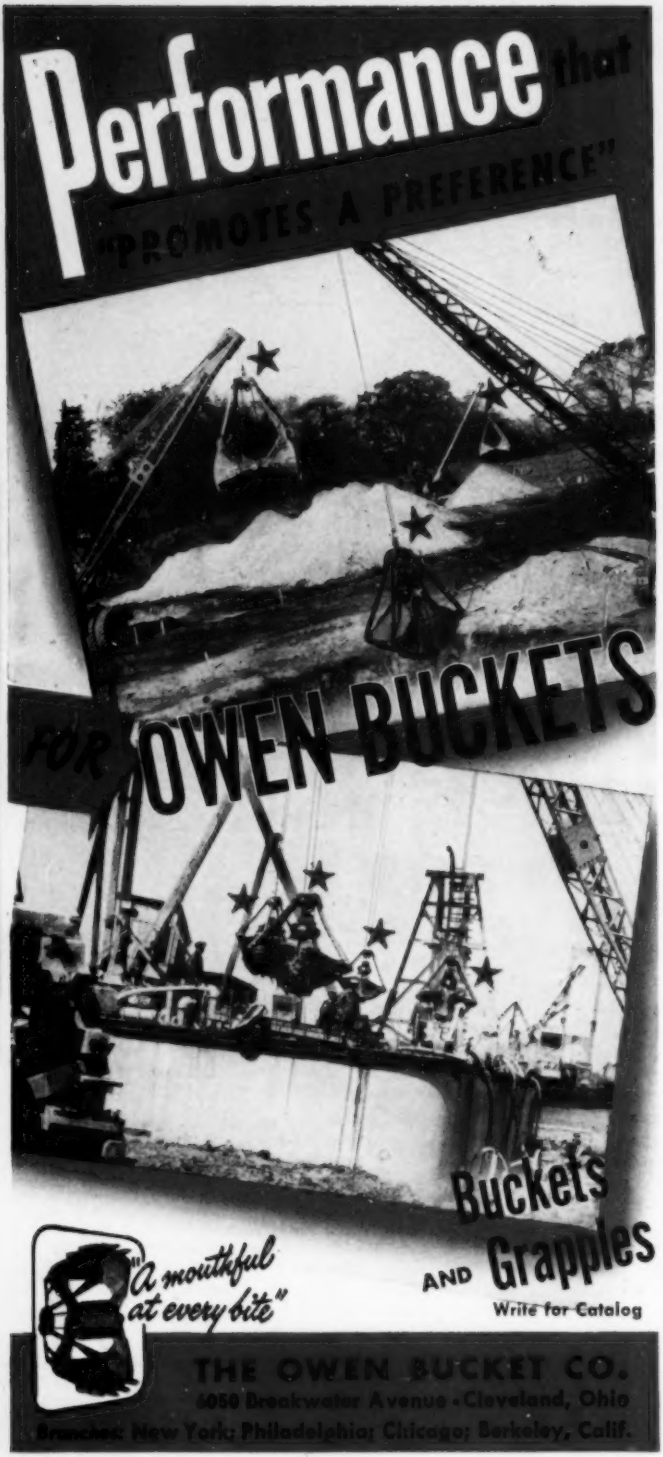
G-18

SMITH ENGINEERING WORKS, 564 E. CAPITOL DRIVE, MILWAUKEE 12, WISCONSIN

Cable Address: Smgworks, Milwaukee

51 East 42nd St. New York 17 — 211 W. Wacker Dr. Chicago 6, Ill. — 713 Commercial Trust Bldg. Philadelphia 2, Pa. — 238 Main St. Cambridge 42, Mass. — Interstate Eqpt. Co. Statesville, N.C.

Rish Equipment Co. Charleston 22, S.C. & Clarksburg, W.Va. — Rish Equipment Co. Roanoke 7, & Richmond 10, Va. — Wilson-Wessner-Wilkinson Co. Knoxville 8, & Nashville 6, Tenn.

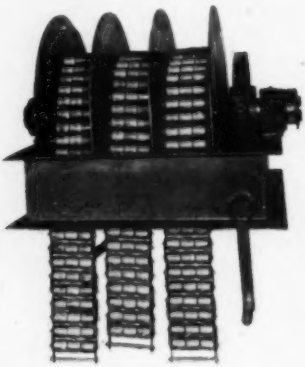


designed roller bearing jaw crusher with a full 18-in. by 24-in. jaw opening and jaws of standard thickness; a 42-in. by 10-in. horizontal vibrating "aglime" screen; a Cedarapids hammermill, either 3033 or 2033; and a Cedarapids return wheel system of Monorail design. A 3018 roll may be used in place of the hammermill. A 2025 primary crusher may be used in place of the 1824.

● Reel for Test Chains

A roller test chain reel, product of the Merrick Scale Mfg. Company, Passaic, N. J., has been designed for testing and calibrating "Weightometer" installations.

It is claimed that the reel handles the heaviest chains with ease and eliminates



the need for several workers who are otherwise needed to handle the chains. Other advantages cited include the following: avoidance of muscle strain, finger injuries, and damage to edges of conveyor belts, guard rails, skirtboards and test chains; accelerated testing; avoidance of over time; tendency to encourage regular testing; safe storage of test chains directly above the conveyor belt for immediate availability.

Reels are furnished to suit every installation and can handle one, two, or three chains.

● Center-Dump Trailer

A trailer built to "handle more material faster at less cost" is the manufacturer's description of the Omaha Standard center-dump trailer, custom-built to job requirements.

The body of this trailer is 10- 8 gauge welded steel plate; it is designed as an integral part of the trailer chassis. All-structural-steel channels comprise the chassis, which has a low center of gravity. Timkin heavy-duty tubular single or tandem axles are used, depending upon load requirements. Bendix Westinghouse air brakes are standard equipment; Bendix and Midland vacuum brakes are optional. Capacity of the trailer is 8 to 14 cu. yds. Omaha Standard Co., 2411 W. Broadway, Council Bluffs, Ia.

More Information, Please

CHECK AND MAIL THE CARD BELOW FOR ADDITIONAL INFORMATION ON NEW MACHINERY AND SUPPLIES

1. **Are Those Your Hauling Problems?** Flier containing typical questions relating to hauling dirt, rock or gravel, together with answers involving use of the Omaha Center-Dump Trailer. Omaha Standard Company.

2. **Wear-ARC Hard Facing Alloys.** 8-page bulletin announcing a new line of hard-facing alloy electrodes. Properties, welding procedure, typical applications, sizes, and identification are given for each electrode: Wear-ARC "Wh" (for manganese and high-carbon steel parts subjected to severe impact, abrasion and compression); Wear-ARC Chrome-Boride (for wear resistance from severe abrasion); Wear-ARC "12" (for wear patterns caused by impact and abrasion); Wear-ARC "3" (for carbon steel parts subjected to severe impact, abrasion and compression); Wear-ARC "6" (for heavy-impact, abrasion and compression); Wear-ARC "28" (for light impact and severe abrasion); and Wear-ARC "FP" (for impact, heat, compression and abrasion). Alloy Rods Co.

3. **Better Sizing—Cheaper.** Bulletin No. 50. 20-page illustrated booklet containing working information on screen sizes, production capacity, and service for a wide variety of applications such as sand, gravel, stone, haydite, hot-mix asphalt, coal, etc. The Deister Machine Co.

4. **Joy Hydro Drill Jibs.** Illustrated bulletin describing in detail the Jib-Jumbo mounting, Joy Drillmobiles, Joy Junior Drillmobile, special applications of the Joy Hydro Drill Jib, Joy Silver Streak drifters, etc. Joy Manufacturing Co.

5. **84-Inch Series Type "R" Gyratory Crusher.** Contains a large sectional view of this crusher, tables of capacities and dimensions, and several field views of the Type R. Allis-Chalmers Mfg. Co.

6. **Increase the Life of Your Equipment with Stoco Hard-Surfacing Welding Electrodes and Best Thing in the World for Rebuilding and Repairing Worn Buckets — Manganal.** Two vest-pocket folders. The first cites desirable features of these electrodes, describes procedure, and mentions applications. The latter contains a keyed sketch of a bucket, showing repair parts made of manganal. Stoughton-Sickles Co.

7. **Combustion Control for Industry.** Pictures Cities Service industrial heat prover in various applications and explains its operation and types of service as a device for measuring the combustion efficiency of any furnace using any form of fuel. Contains many graphs and tables. Cities Service Oil Co.

8. **Link-Belt Fluid Drives.** Book No. 2385. Contains detailed information on the Link-Belt Electrofluid drive packaged power unit, including types of applications (illustrated), descriptions of the various models, special features, arrangements, engineering data, selection tables, specifications, etc. Link-Belt Co.

9. **Moline Concrete Test Cylinder Molds.** Bulletin No. 649. A series of illustrations presents steps in making a concrete test cylinder in one of these molds. Cites special features of the molds and gives the distinction between Model A and Model B. Moline Iron Works.

10. **The New Davey Super Chief.** Flier on the Model 60-WBD portable air compressor. Various uses are pictured and described; specifications are given and important features are listed. The Davey Compressor Co.

11. **Superior Diesel for Stationary Application.** Bulletin No. 4812. (Supersedes Bulletin No. 4705.) Features 60 years of engine research and production development and pictures numerous installations of these engines within the last three years. Included are more than 100 engine specifications. The National Supply Company, Superior Engine Division.

12. **Spray-O-Bond** (Revised March 1, 1950). Revised information on concrete plasticizer as applied to use in concrete products plants. Insert contains dealer net price list, effective April 1, 1950. Spray-O-Bond Co.

13. **Nelson Heavy-Duty Bucket Loaders.** (Models P-11 and Q-11). Detailed information on P-11 (wheel-mounted) and Q-11 (crawler-mounted) loaders, with important features, specifications, and action shots of both performing on the job. N. P. Nelson Iron Works, Inc.

14. **Handle Materials Efficiently with Branford Vibrators.** Flier featuring pneumatic vibrators for materials handling, block machines, vibrating tables, pipe and tank forms, etc. Explains method of installation, operation, and applications. New Haven Vibrator Co.

15. **The Merrick Roller Test Chain Reel.** Flier presenting this device for handling test chains. Lists desirable features and contains diagrams and photograph. Merrick Scale Mfg. Co.

16. **Lubriplate.** 41-page data book containing sections on product data, proper application, and recommendations for various uses in many industries. Fiske Brothers Refining Co., Lubriplate Division.

17. **Pioneer Model 51 Continuflo Bituminous Plant** (Form No. 619) and **Pioneer Continuflo Conveyors** (Form No. 612). First contains an interesting phantom view of the Model 51, keyed to show the steps of the process, as well as the electrical system and other features. The second (40 pages) covers the field of Pioneer conveyors. Includes such topics as construction and design, plans for ordering, pre-engineered conveyors, job-engineered conveyors, idlers, belts, drives, electric motors and controls, and many others. Pioneer Engineering Works.

18. **ORO Replacement Parts for Shovels and Crushers.** Illustrated descriptions of parts (made of alloyed manganese steels) such as crawler treads, dipper tooth points, drag and hoist chain parts, bowl liners and mantles, hammermill parts, etc., obtainable from the Kensington Steel Company.

19. **Gruendler Models 25, 35, 50, 75, 100, and 150 Gravel Crushing and Screening Plants.** Contains keyed sketch of one of these plants, with closeups of vital parts and explanations of their various functions. Also a table of specifications. Gruendler Crusher & Pulverizer Co.

20. **Bailey Instruments and Controls for Process Industries.** Bulletin 17-B and

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June, 1950

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COMPANY

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More Information, Please

Index BG 077. Illustrated descriptions of controllers; control components; typical control systems; measuring components; indicating, recording and integrating combinations; and electronic type instruments. Bailey Meter Co.

21. **Continental Diesel Engines and Agricultural and Industrial Engines.** First is a vest-pocket four-color handbook containing an illustrated exposition of the Continental "cushioned power" combustion chamber in action. Also recommendations on fuels, lubrications, etc. Second deals with the application of the "cushioned power" combustion chamber to agricultural and industrial jobs. Includes a table of specifications. Continental Motors Corp.

22. **Convair Pneumatic Conveying Systems for All Industries.** Bulletin No. 108. Lists materials which can be handled through these systems; shows by means of sketches and diagrams how handling is accomplished in several industries. Convair Corp.

23. **50 Percent to 80 Percent Lower Grinding Costs.** Four-page bulletin explaining reduced grinding costs and longer screen life with the use of the Hannon electric screen heater. Also features Hanco kiln cooling fans and Hanco super-boost kiln draft boosters. F. R. Hannon & Sons.

24. **Syntron Metallic-Dry Plate Selenium Rectifiers.** Explains the purpose of this device, its advantages and applications in industry, and gives information on plate sizes, rectifier circuits, cooling, design etc. Includes tables on rectifier plate sizes and ratings. Syntron Co.

25. **R-S 50-Pound Valves.** Catalog No. 18. Lists advantages and design features and describes metals used in these valves. Contains descriptions, illustrations, and specifications of R-S valves and also cylinder controls. R-S Products Corp.

26. **Quay Industries Wire Rope Splicing Tools.** Flier showing a splicing kit and how it is used as a tray splicer. Quay Industries.

27. **Cannon Pneumatic Vibrators.** 8-page illustrated bulletin giving characteristics and specifications for all types of vibrators. Cannon Vibrator Co.

28. **Hercules Medium-Duty Hoists and Dump Bodies.** Contains illustrations, descriptions, and specifications for all types of Hercules hoists and dump bodies for medium-duty applications. Includes a comparison chart of body sizes. Hercules Steel Products Corp.

24. **Direct-Current Generators for Lighting and Power Supplies.** Bulletin 41-200. Brief descriptions of these generators supplement general information and data on construction features. The Electric Products Co.

25. **Figure-Fact Efficiency Using the Remington Rand Printing Calculator.** A presentation of a machine recommended for estimating, computing, payroll work, and other applications. Presents actual "problems" in estimating number of blocks, compiling a payroll, computing cubic content, etc. Remington Rand.

26. **Baldwin-Rex BA Assembly Riveted Roller Chains.** Bulletin No. 50-6. Explains what the BA assembly is, its advantages, assembly and disassembly, offset links, etc. Contains list price tables and boxed assembly specifications, also tables of dimensions and other technical data. Chain Belt Co.

27. **Century Presents 2 in 1 Century Hydraulic Spread-All.** Lists basic advantages of this spreader attachment for use with a truck body. Cites materials it will handle, and gives condensed information on power, operation, control, and adaptability. Specifications are included. Century Engineering Co.

28. **Wedgelok Safety Connecting Links.** Complete specifications and prices for eight types of connecting link. Flier inserts suggests possible uses. Interstate Drop Forge Co.

29. **Kwik-Mix Moto-Bug.** Numerous illustrations show the various uses of this power wheelbarrow, and closeups point up the special benefits of the Moto-Bug. A keyed photograph shows positions of important parts. Specifications are included. Kwik-Mix Co. (Koehring subsidiary).

30. **The Drott Bulldiam Shovel.** Flier presenting the operating and design features of this shovel, together with specifications and potential applications. Drott Mfg. Corp.

31. **The Gardner Grinder.** Describes the use of this device in the concrete block industry and in the manufacture of concrete roof and floor slabs. Gardner Machine Co.

32. **Mercury Clutches — Bulletins 216, 217, and 218.** No. 216 contains information on automatic torque control for gasoline engines and electric motors. A list of suggested applications is given; outstanding features are listed; and performance is explained. No. 217 on automatic torque control for gasoline engines tells how to select the correct Series G clutch; gives a selection chart and clutch dimensions. No. 218 (automatic power transmission control for electric motors) features the Series E clutch. Lists outstanding advantages and contains selection chart and clutch dimensions. Automatic Steel Products, Inc., Mercury Clutch Division.

33. **Oliver Industrial Wheel Tractors.** 24-page booklet, fully illustrated, featuring four Oliver tractors—the 66, 77, 88, and 900. Suggested applications are listed and illustrated by action shots. Keyed cut-away views indicate the main features of each model. Extra and allied equipment is discussed, and specifications are given. The Oliver Corp.

34. **Bottom-Dump Euclid with Improved Features.** Effective illustrations and text demonstrate special advantages of the Model FDT 13-cu. yd. 20-ton bottom-dump Euclid. Most important parts are indicated on a blown-up view of the model, and special attention is given to the "planetary drive" axle and the heavy-duty transmission. Specifications are given in detail. The Euclid Road Machinery Co.

35. **Dunbeam Brochure.** Presents the Dunbeam joist machine. Discusses operating principles, construction, and potential precast market. W. E. Dunn Mfg. Co.

36. **Wemco Fagergren Flotation Machines.** Bulletin No. F-5-C-1. Covers the beneficiation of metallic ores, nonmetallic minerals, and industrial minerals with this equipment, including performance, design and construction, dimensional data, proper selection, capacities, case histories, etc. Fully illustrated with photographs and schematic drawings. Tables of flotation factors, cell volumes, and capacities are included. Western Machinery Co.

37. **Newark—a Handbook of Information on Newark Woven Wire Screen and Wire Cloth Products for Accuracy.** Catalog D. In addition to photographs of wire surface views and sections, there are several illustrations showing steps in the manufacture of these products. Full specifications are given, and special types are described. Newark Wire Cloth Co.

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CHICAGO 5, ILL., U.S.A.

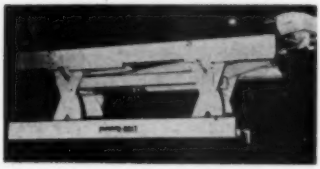
● Special Lubricant

An improved crankcase oil for diesel and gasoline engines, which will combat sludge and engine deposits under severe operating conditions, even when used with fuels containing up to 1 percent sulphur, has been announced by the D-A Lubricant Company, Inc., Indianapolis, Ind., specialists in heavy-duty lubricants.

Among the advantages cited for the new oil are these: it prevents ring sticking, valve and rocker arm deposits and excessive liner wear when high sulphur fuels are used; it prevents cold engine sludge in stop-and-go operations as experienced in delivery fleets; it prevents rust and moisture corrosion in engines that are idle or in storage; the alkaline factor neurtalizes the corrosive acids of combustion and results in reduced ring and liner wear in all types of diesel, gasoline, and butane engines.

● Elevating Table

An exceptionally low height and a greater range of elevation is made possible with the compound lever arrangement in a hydraulic sheet feeding table

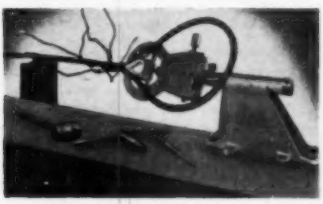


offered by Lyon-Raymond Corp., 19267 Madison St., Greene, N. Y.

A standard model, 1196 is available with a capacity of 10,000 lbs. The range of elevation is from 23 in. to 36 in., providing a total lift of 24 in. The platform is 36 in. wide by 96 in. long. End and side extensions are available to increase the platform area.

The new table also features a vertical lifting arrangement, and the manufacturer stresses the point that there are no uprights extending above the platform to stand in the way of overhanging material.

It is offered with a two-speed foot pump or a power-operated pump.



Quay Industries, 100 Barr Bldg., Washington 6, D. C., offers its wire rope splicing machine, simple in design and easy to operate, a device designed to save plant space and reduce man-hours in splicing operations. The No. 9 splicer can be adapted to handle from ⅜-in. to 1¼-in. wire rope, and larger capacities can be supplied on order. Maximum capacity of the No. 1 splicer is 1/16-in. to 7/16-in. rope.

In Snatch Blocks...
look for SAFETY FIRST!
A man can't rig carelessly, with an AMERICAN Self-Locking Snatch Block. He rigs the block in only 5 seconds—accidental opening is impossible. Lay in the rope, close the plate and the block is positively locked!
NO GUESSWORK
Size and capacity are plainly embossed on the steel side plate of each AMERICAN Snatch Block. You know the safe capacity at a glance.
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for the AMERICAN trademark on the next block you buy. You get the benefit of over half a century's manufacturing experience in the hoisting industry.
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AMERICAN blocks are standard equipment in the crane industry. They have to be strong and tough. You get the same rugged dependability throughout the full line of AMERICAN wire rope blocks. Sold by distributors everywhere . . . capacities from 1½ to 250 tons.
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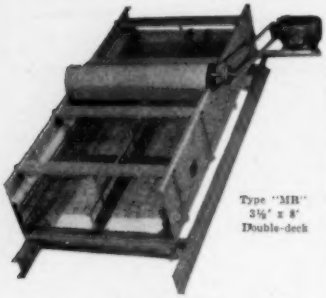
ARE GETTING MORE CAPACITY PER SQUARE FOOT OF SCREENING AREA!

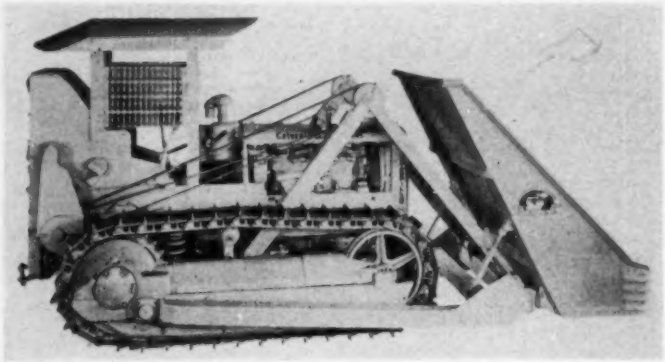


Type "MR" 3½' x 8' Double-deck

GET ACQUAINTED WITH THESE QUARRY VETERANS AT YOUR NEXT OPPORTUNITY. THEY CAN SAVE *YOU* TIME AND MONEY!

Write for free catalog No. 109 on screens and screening.

UNIVERSAL VIBRATING SCREEN CO.
RACINE, WISCONSIN



● Overshot Loader

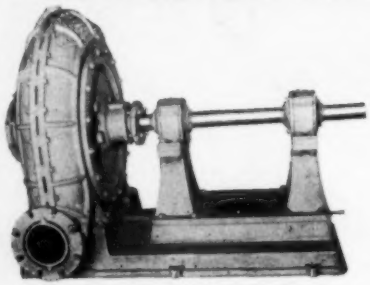
Recent addition to a line of overshot loaders for tractor mounting is the Austin Model 4-C, announced by John Austin, Inc., Denver, Colo., manufacturer. The loader is readily attached to utility size tractors, including the Caterpillar D-4, Allis-Chalmers HD-5, and International TD-9.

The loader has a rated capacity of 1 cu. yd. and a 20-second loading cycle. It will handle bank-run material at a rate of 125 cu. yds. per hour on a 50-minute hour with no increase in fuel consumption over normal dozing operations. The overshot action, which eliminates swinging and blocking, is powered by a Caterpillar Model 24 cable control unit driving a single cable through a wrap-around series of sheaves. The result is even tension at both sides, maximum power at the start of the loading cycle, and maximum speed for the balance of the cycle.

The Austin Model 4-C loader is made in two heights, for surface operation and for underground mining, respectively. The standard machine for surface operation has an overall height of 15 ft. 3 in., with bucket raised, and a dumping clearance of 8 ft. For underground mining it has an overall height of 12 ft., bucket raised, and a dumping clearance of 6 ft. Both units have adequate clearance for highway transportation and low underpasses.

Other models in the line of Austin Overshot Loaders are the Model 6-C, 1½ cu. yds.; the Model 7-C, 2½ cu. yds.; and the Model 8-C, 3½ cu. yds., rated capacity.

TWO PROVEN FACTS:



6" Heavy Duty "Tell-Tale" Pump Equipped with Ball Bearings

1. You CAN'T wear out a "TELL-TALE" CENTRIFUGAL SAND AND GRAVEL PUMP SHELL.

2. You CAN produce more Aggregate year after year with a "Tell-Tale" Pump than with any other make, size for size, that you've ever used, seen, or heard of.

PROOF

The first statement is proved everywhere "Tell-Tale" Pumps operate. It is made possible by the patented Split Shell, with its Inner Shell Liner, which takes all of the wear that would otherwise be absorbed by the Shell. The unique "tell-tale" warning the operator receives when the Shell Liner has worn thru, prevents any wear from taking place on the Split-Shell. Descriptive Bulletin gives complete details. Satisfaction guaranteed.

The second fact has been long established by hundreds of users in 17 States. This is due to the higher vacuum "Tell-Tale" Pumps build up, which means greater suction and the ability to discharge against higher "heads".

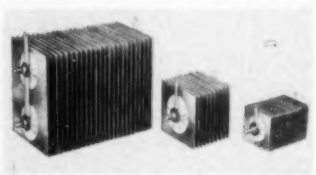
Write for descriptive Bulletin "P", stating size Pump in which you are interested.

PEKOR IRON WORKS, INC.
Lock Drawer 909 — Columbus, Georgia

● Metallic Rectifiers

A new vacuum process developed by The Syntron Company produces dry selenium rectifiers of heavy-duty quality in exceptionally large plate sizes.

The high vacuum vaporization is said to deposit the selenium uniformly over



the entire plate area with a complete absence of impurities or other flaw spots resulting in rectifiers able to withstand high inverse voltage and having particularly low resistance in the conducting direction.

The plates are processed in large sizes by semi-automatic equipment under automatic instrument control and then sheared to desired size. Standard size plates run from 1 by 1 in. to 6 by 12 in. and special large plates are made to order up to 12 by 52 in. in size.

Two or more studs are used in stacking the larger plates to provide sturdy stiffness and mechanical strength. The manufacturer, Syntron Company, 385 Carson Street, Homer City, Pa.

trade notes

C. E. Lovewell

Definite plans by Pioneer Engineering Works to expand the scope of its sales and services to the lime and cement producing industries have been announced by K. E. Brunsdale, sales manager. Heading the increased activities in this field will be C. E. Lovewell, who will serve as sales engineer for the Pioneer company.

Prior to joining the sales force of Pioneer Engineering Works, Mr. Lovewell was chief engineer and sales manager for the Carney Company, Mankato, Minn. From 1936 to 1945 he was engaged in sales and sales promotion for the Louisville Cement Company in the Washington, D. C., and Louisville areas.

Eugene C. Bauer, president of the Kensington Steel Company of Chicago, a subsidiary of Poor & Company, has been elected first vice-president of the latter firm. He was previously a vice-president of Poor & Company.

Hardinge Company, Incorporated, York, Pa., has arranged with the Ellicott Machine Corporation of Baltimore for exclusive manufacturing and sales rights for Kuntz lime and hydrate equipment.

Under this contract two major pieces of equipment which will be built and sold by Hardinge are the Kuntz continuous feed automatic type lime kiln and the Kuntz lime hydrator. The contract also makes the Hardinge Company exclusive suppliers of repair parts for Clyde and Schulthess hydrators, as well as the Sobek kiln. Catalogs covering the Kuntz hydrator and kiln will be issued in the near future.

J. R. Keach has been appointed general manager of Quaker Rubber Corporation, Philadelphia, Pa., a division of H. K. Porter Company, Inc., Pittsburgh.

During his 25 years with the rubber industry Mr. Keach was associated with the Ohio Rubber Company, Willoughby, O., the Firestone Industrial Products Company, Akron, O., and the Hamilton Rubber Corporation, Trenton, N. J.

J. William Schulze has been elected president of the Pennsylvania Crusher Company, succeeding William S. Newell, chairman of the board of the Bath Iron Works Corporation, the parent company. Mr. Schulze is vice-president of the Bath Iron Works Corporation.

John A. Plimpton was elected vice-president. He has been division manager since June 1, 1949. John R. Newell, president of the Bath Iron Works Corporation, also was elected vice-president of the crusher company.

The merger of American Air Filter Company, Inc., Louisville, Ky., manufacturer of air filters and dust collectors, and the Herman Nelson Corporation, Moline, Ill., one of the oldest names in quality heating and ventilating equipment, recently became effective.

The Nelson Corp. henceforth will be operated as the Herman Nelson Division of American Air Filter Company, Inc., and will continue to maintain its headquarters and facilities in Moline. The merged company's principal offices and headquarters will be in Louisville, Ky.

BUILDING A GIANT DAM the easy way!

Building Buggs Island Dam on Virginia's Roanoke River requires moving *millions of tons* of crushed granite aggregate . . . from a nearby quarry to dam site. Assisting in this huge task CINCINNATI CONVEYOR BELTS play an important role. From quarry to surge pile . . . one of the most vital distances on the route, a 700' Cincinnati Belt moves heavy loads of 8-inch rock continuously. Similarly . . . a 390' Cincinnati Belt serves elsewhere in this gigantic project.

Yes, always, wherever there's *big tonnage* and a need for *low belt cost per ton conveyed* you'll find Cincinnati on the job.

THE CINCINNATI RUBBER MANUFACTURING COMPANY
Cincinnati 12, Ohio

CINCINNATI CONVEYOR BELTS

DON'T WASTE MANPOWER!

—hammering and poking arched and plugged bins, hoppers, bunkers and chutes!

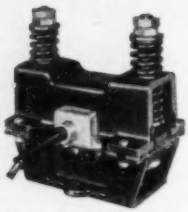
APPLY
SYNTRON
"Pulsating Magnet"

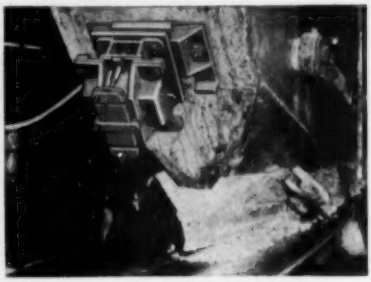
ELECTRIC VIBRATORS

and watch the material flow!

Banged-up and dented bins and hoppers cost money in replacement and in man hours lost.

SYNTRON Vibrators eliminate the arching and plugging that takes a man's time to pound, and damage, those bins and hoppers.





Pulsating electromagnets that produce 3,600 vibrations per minute from 110, 220 or 440 volts, 60 cycle A.C.

There are no cams, gears, or eccentrics — merely electromagnetic reciprocation from half-wave rectified current.

Catalog data is available on request — or write giving the details of your problem — our Engineering Department will be glad to give you their recommendations.

SYNTRON CO.

385 Carson **Homer City, Pa.**

Is Your Plant Wasting Valuable Fine Sand?

- The Cottrell Separating Cone*, a revolutionary new development, is a "must" for the sand-and-gravel plant.
- Users report recovery of up to 10 tons per hr. of clean fines in the 28 to 200-mesh range, from classifier overflow formerly wasted.
- Low in first cost, maintenance free operation, extremely low operating cost, a Cottrell Cone will pay for itself in a few weeks in sand saved—and blend in the valuable fines you need to meet today's rigid specifications.
- Built in sizes to meet your requirements—get the facts at once!

*Patent Applied For

COTTRELL ENGINEERING CO.
322 South Ave. 17, Los Angeles, Calif.

The management of Sinex Projects, Inc., announces the removal of its offices from 40 Wall Street to 745 Fifth Avenue, New York, N. Y.

J. W. Schulze, vice-president of Bath Iron Works Corporation and president of Pennsylvania Crusher Company, announces that The Bath Iron Works Corporation, through its subsidiary, the Pennsylvania Crusher Company, Philadelphia, Pa., has purchased all of the outstanding capital stock of the Dixie Machinery Manufacturing Co., St. Louis, Mo .

The Dixie Company was organized in 1918 and has been successful in the manufacture and sale of its special type of hammermills to cement mills, the feed, road and quarry, bauxite, ceramic and other industries, particularly in the West and Southwest.

E. W. Noxon, former president, is expected to continue his connection with the Dixie Machinery Manufacturing Co. He has been appointed acting manager for an indefinite period.

D. J. Rohrer

David J. Rohrer, vice-president of The Four Wheel Drive Auto Co. and a director of the company since its organization in 1910, died recently at the age of 76 years.

When a company was organized to manufacture four-wheel-drive vehicles, he was one of the organizers and was elected the first treasurer of the company, a position he held until two years ago. At that time he was elected senior vice-president of the firm.

Besides his interest in FWD, Mr. Rohrer was president of the D. J. Rohrer Lumber Company, the D. J. R. Real Estate Company and the Atlas Conveyor Company.

H. A. Kindler, for the last five years manager of the Air Compressor Division of The Jaeger Machine Co., Columbus, O., has been promoted to district manager in the five-state area of Illinois, Iowa, Missouri, Nebraska and Kansas.

Dale D. Murray, who takes his place as manager of the Air Compressor Division at Columbus, advances from the position of Western representative for Jaeger in San Francisco.

American Brake Shoe Company has opened a new sales office at 2620 Maury Street, Houston, Tex., in order to provide more direct service to its customers in the Southwest. William C. George, who has been appointed sales engineer for the company in this territory, will represent Brake Shoe's American Manganese Steel, Electro-Alloys and National Bearing Divisions in the new office. Mr. George, formerly in the sales department of Electro-Alloys Division, has been with Brake Shoe since 1939.

legal decisions

By LEO T. PARKER
Attorney at Law
Cincinnati, Ohio

Recently a reader wrote, as follows: "I have carefully followed your legal writings in PIT AND QUARRY for several years, but don't seem to remember reading much about insurance laws. Here is our problem: We carry liability, property, collision and indemnity insurance on our motor trucks. One truck was involved in an accident when hauling gravel 75 miles from our plant. The insurance company refuses to pay our loss because a clause in our insurance policy states that the policy insures trucks while being operated within a radius of 50 miles of our plant. We contend that the insurance company is liable because we told the insurance agent that we wanted unlimited protection and he promised he would supply it. I have proof that he said our policy would cover our trucks no matter where they are operated. Can we compel the insurance company to our loss?"

The answer is "no." First, I shall review a recently decided higher court case which involves practically the same points of law; then I shall explain certain interesting insurance law likely to prepare readers to avoid legal controversy over insurance policies and assist them to win unavoidable law suits.

Recently a higher court held that one who holds an insurance policy cannot recover insurance for a loss if the policy does not specifically cover the loss.

For example, in *Wallace v. Virginia Surety Company, Inc.*, 55 S. E. (2d) 259, it was shown that a company held an insurance policy that insured all its motor trucks "when operated with a radius of 500 miles of the place where the trucks are principally garaged."

One truck was driven a distance of 700 miles from the garage, where it was involved in a collision.

In subsequent litigation the higher court decided that the truck owner could not recover the loss from the insurance company saying:

"We think it is clear that it was the intention of the parties that the vehicles insured be not used as long-haul carriers, and the liability of the insurance company under the policy was at an end when the plaintiff sent his truck beyond the 500-mile radius, thus increasing the hazard and risks that the truck was subject to."

Validity of Insurance Policies

There are various kinds of insurance policies which readers may carry for protection. These policies include collision, liability, property, etc., on motor vehicles. For protection of plant operations insurance companies furnish policies for insurance against fire, tornado, hail, flood, indemnity, unemployment compensation, workmen's compensation, medical, accident, liability, bomb, burglary, theft, etc.

A great majority of operators of nonmetallic minerals plants should carry all, or almost all, of these policies.

It is important to know that an ordinary insurance agent is *your* agent, not an agent of the insurance company. Hence, the insurance company is not at all liable for promises of protection made by the agent. Therefore, remember this established law: Irrespective of what your insurance agent tells you and no matter what protection you *believe* your insurance policy affords, you must rely exclusively upon the protection defined by the clauses in the policy. See *West v. Emloyers Casualty Company*, 178 S. W. (2d) 168.

EASY MANEUVERABILITY—RUGGED DEPENDABILITY

MINNEAPOLIS-MOLINE
MM
MODERN MACHINERY

INDUSTRIAL WHEELERS

Get More Work Done Per Hour.....

When you want to speed the job—do it with MM Industrial Wheelers. Operators of ready-mix concrete plants report loading 70-80 tons of gravel per hour with MM Industrial Wheelers on average hauls of 100 feet from stockpile to hopper.

Investigate these advanced-design features that assure you dependability on rugged jobs!

- Shuttle Gear for 6 forward and 6 reverse speeds up to 14.5 m.p.h.
- "Roller Spin Steering" has roller and needle bearings from steering wheel to ground.
- RTI high-compression valve-in-head engine with 150 fewer wearing parts.
- Extra strong heavy-duty clutches.
- Heavy cast front-wheel centers and fabricated H-type front axle.
- High turbulence combustion chambers and regulated cooling for extra power output.

See Your Nearest MM Dealer, Distributor or Write

MINNEAPOLIS-MOLINE
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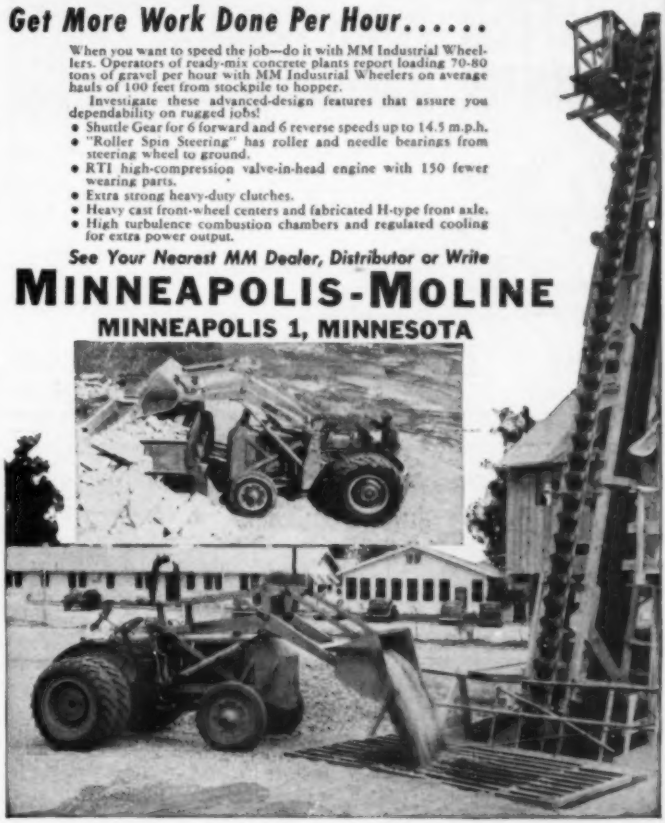

A review of recent higher court law suits discloses that an insurance policy is void (1) if the insured secured the policy through erroneous, untruthful, fraudulent or deceitful statements made in the application; or, (2) if the loss resulted from gross negligence or unlawful acts of an employee; or, (3) if the testimony proves that the insured or his employee violated terms of the policy; or, (4) if the insured was performing an unlawful act when the damage occurred. See *Niagara v. Lowell*, 56 N. E. (2d) 28. Here the higher court held that an insurance company was justified in refusing to pay liabiliity insurance because the testimony showed that the vehicle driver failed to obey a state safety regulation which resulted in the accident.

Hence, it is quite apparent that numerous situations may arise under which, although a company may have paid insurance premiums on insurance policies for many years, yet no adequate protection is provided by the policy. It is well, therefore, that readers *know* the law relative on insurance, as reported in new higher court decisions, and conduct the business in view of avoiding liability, whether or not insurance policies are intended to give desired and necessary protection.

Must Pay Cash

According to a recent higher court where a seller of nonmetallic products breaches a contract to deliver his products as payment on a debt, the seller must pay cash if he fails to make the delivery of his products within the period specified in the contract, or agreement.

For illustration, in *Cook v. Talbert*, 225 S. W. (2d) 682, the testimony showed facts, as follows: One Talbert sold to one McNew 99 shares of stock in the Arkansas Lime and Stone Company at $50.00 per share, or a total purchase price of $4,950.00. The plant of the Lime and Stone Company produced crushed agricultural limestone which was sold to farmers through the AAA program of the Federal Government. Under the terms of the contract McNew agreed to furnish Talbert 3,000 tons of limestone of certain specifications at a net price of $1.65 per ton in payment for the stock. The contract specified that McNew would deliver to Talbert the full 3,000 tons of lime before January 1.

Talbert sued McNew and proved that he had paid $701.25 by delivery of 425 tons of limestone, but had failed to deliver any more limestone. Talbert asked the court to compel McNew to pay the balance due of $4,248.75 in cash with interest at the rate of 6 percent per annum.

In holding in favor of Talbert, the higher court said:

"When considered in the light most favorable to appellee (Talbert) the testimony in the instant case is substantial and sufficient to support the trial court's finding that McNew wilfully failed to furnish 2575 of the 3000 tons of limestone on or before January 1, as required by the contract, and consequently became liable for the balance due on the purchase price of the stock in cash."

Law of Eminent Domain

The law of eminent domain means that private property may be taken for public purposes *without consent* of the owner.

Private property can be condemned and appropriated by the United States, state, county, municipality or any utility as a gas, electric, water corporation, etc.

The Fifth Amendment of the Constitution provides that private property shall not be taken for public use without just compensation. Such compensation means the full and perfect equivalent in money of the property taken. In other words, the owner is to be put in as good position pecuniarily as he would have occupied if his property had not been taken. According to a recent higher court, the owner's indemnity should be the "fair market value" of what is taken.

But according to a recent higher court "just compensation" *does not mean* the amount the property *is worth* to the present owner. The term means the amount the property will bring when placed on the open market for sale. This is so although the open market sale price is only a small fraction of what the property is worth to the present owner.

For example, in *United States v. Pennsylvania-Dixie Cement Corporation*, 178 Fed. (2d) 196, the testimony showed facts, as follows: The Pennsylvania-Dixie Cement Corporation entered into

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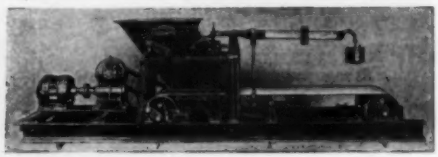

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a contract in writing with a land owner by virtue of which the former was granted the exclusive right for a period of ten years to enter upon three acres of the land and to remove therefrom sand in such quantities as it might desire. Two years later the United States condemned the three acres and took possession of it.

When the government took possession of the land, the Pennsylvania-Dixie Cement Corporation had already removed from the sand deposit in controversy 12,724 tons for use in the manufacture of cement. 12,313 tons then remained. With its local supply of sand cut off, the company began to purchase its requirements from suppliers at a price of $1.50 a ton, f. o. b. its plant.

In subsequent litigation the lower court awarded Pennsylvania-Dixie Cement Corporation $7,000 damages and based its allowance upon the difference between what the remaining 12,313 tons of sand would cost the company at $1.50 per ton, and what it would have cost the company to have mined it from the three-acre tract.

It is interesting to observe that the higher court reversed this judgment, stating important law, as follows:

"The award of the district court was, we think, erroneously based upon the fixed value of the cost of replacement of the sand at the time the property was taken. . . . Undoubtedly, the particular sand bank in controversy was of especial value to appellee (Pennsylvania-Dixie Cement Corporation) on account of its propinquity to its plant. . . . The Supreme Court has made it clear that market value of property taken for public use is the standard for determination of just compensation. . . . The special quality of the sand should, of course, be considered in estimating its market value. But the final inquiry must be the fair market value of the sand, assuming a purchaser willing and able to buy and a seller willing to sell."

The higher court held that the Pennsylvania-Dixie Cement Corporation could not recover from the United States the *difference* between what it will be compelled to pay for 2,313 tons of sand, and its small cost of digging this quantity of sand from the three acres. In other words, the Pennsylvania-Dixie Cement Corporation must prove the amount for which it could have sold its lease rights in the three acres. Quite obviously, this amount will be relatively small when compared with the actual value of the sand to the Pennsylvania-Dixie Cement Corporation.

Lower Court in Error

Under no circumstances will a higher court approve a lower court's verdict involving the amount due a well contractor unless the lower court decided whether or not the contractor complied with the exact terms of the contract.

For example, in *Helmerich & Payne, Inc. v. Carson Company*, 196 Pac. (2d) 852, the testimony showed facts, as follows: A contractor made a contract with Helmerich and Payne, Inc., to drill a well at a stipulated location. The contract contained a clause, as follows:

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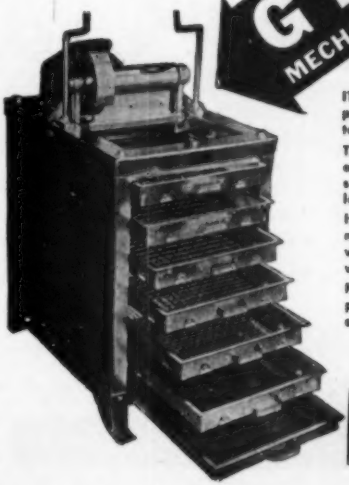

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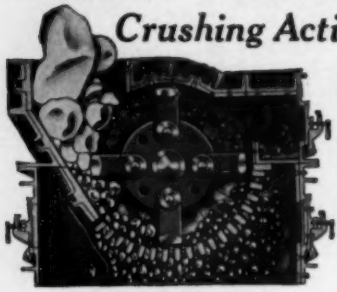

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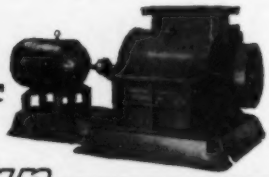

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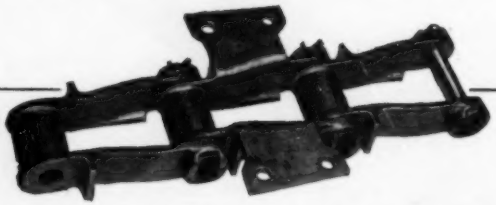

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"Our (contractor's) contract shall be deemed to have been fulfilled when we have taken a core in the Wilcox sand."

The court claimed that he drilled the well to the Wilcox sand and, according to the terms of the contract.

The company refused to pay the contract price and the contractor filed suit. The contractor contended that his contract was fulfilled and completed under the terms of the contract when it encountered the Wilcox sand.

The lower court rendered a judgment allowing the contractor only a small part of the contract price. The contractor appealed to the higher court which said:

"We are unable to find where the trial judge found that the Wilcox sand was not encountered, nor can we find any determination of facts by him on which to base his conclusion that the well was not completed."

Hence, the case will have to be tried again in the lower court, which must determine whether the contractor fulfilled the terms of his contract. If so, the contractor can recover the full contract price.

Transports Fellow Employees

Considerable legal controversies have arisen from time to time over this legal question: If a concrete or cement contractor furnishes transportation to and from jobs for employees, is the contractor liable in damages or compensation for injuries to the employees? The answer is "no," if the contractor has no control over the driver of the automobile.

For example, in *Kobe v. Industrial Accident Commission of California*, 207 Pac. (2d) 849, it was shown that a contractor paid an extra hour's wages to each of his employees as compensation for travel time going to and coming from a job. This left the employees free to arrange their own transportation, and the contractor had no jurisdiction over the employees while they were coming to and leaving a job.

One employee had an automobile and used it to transport the other employees, who paid the automobile owner for their transportation. One day this automobile was struck by a locomotive while four employees were returning from a job. They were all injured in the accident, and one employee subsequently died. Applications for compensation benefits were duly filed with the Industrial Accident Commission.

The higher court refused to award damages or compensation, saying:

"It is conceded that the means of transportation were not actually furnished by the employer in the present case. . . . Nothing in the record remotely tends to show that the employer had any right to inspect or repair the car used, select the driver, regulate the speed of travel, choose the route to be followed, or in any way govern the actions of the employees in the course of their travel to and from work."

On the other hand, the law is established that where transportation to and from work is actually furnished by the employer, as an incident of the employ-

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ment, and the driver is under control of the employer, the employer *is* responsible for injuries and the employees may receive compensation under the State Workmen's Compensation Act.

See *Trussless Company v. Comm.*, 119 Cal. App. 91. Here a higher court held that certain employees of a contractor could receive compensation under the State Workmen's Compensation Act for injuries sustained when riding in a vehicle *furnished* by the contractor. The court said:

"It was not intended by the Workmen's Compensation Act to transform the employer into an insurer of his employees at all times. An award of compensation benefits must be supported by a concurrence of the statutory conditions that, 'at the time of the injury, the employee is performing service growing out of and incidental to his employment and is acting within the course of his employment . . . and that the injury is proximately caused by the employment.'"

City Ordinance Abates Nuisance

It is generally recognized that whatever is injurious to human life or detrimental to health, or whatever deprives the inhabitants of pure, uncontaminated and inoffensive air, is a public nuisance. According to a recent higher court the emission of dense smoke and dust into the atmosphere in populous cities is a public nuisance, and a city ordinance is valid which abates the nuisances.

For example, in *Penn-Dixie Cement Corporation v. City of Kingsport*, 225 S. W. (2d) 270, it was shown that a city enacted an ordinance which prohibited the emission of dense smoke or dust from any smoke stack or chimney of any building.

The authority of the city to enact the ordinance was challenged by the Penn-Dixie Cement Corporation on the ground that the state had not delegated to the city the right to enforce police powers which involved the abatement or regulation of the excessive accumulation of smoke and dust.

It is interesting to observe that the higher court held the ordinance valid, and said:

"The law has never been so inconsiderate of the public welfare as to impose upon a municipality the necessity of obtaining specific legislative authority before it can cope with every condition which may be detrimental to the health of its people. If a municipality must have specific authority, either by a charter provision or under some general law, to enable it to deal with every cause or condition that is detrimental to public health the legislature would be compelled to adopt as many enabling acts as there are conditions thought to be dangerous to the community."

Hence, it is quite apparent that city ordinances to preserve the public health are liberally construed by the higher courts. This is so although it is well recognized law that ordinarily a municipality "has no inherent authority to enact ordinances" unless authorized by a valid state law.

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CENTRAL TERRITORY RAILROADS FREIGHT TRAFFIC COMMITTEE

Docket 87565 (1)—Proposed to establish on stone, crushed, and crushed stone screenings in bulk in open-top cars, carload, minimum weight 90 percent of marked capacity of car, except that when car is loaded to full cubical or visible capacity, actual weight will apply, from Greencastle, Ind., to Indianapolis, Ind., 75 cents net ton.

Docket 87567 (1) — Limestone scrap, rough quarried (not suitable for building purposes) not ground or pulverized, in open-top cars, carload, minimum weight 90 percent of marked capacity of car except that when car is loaded to full cubical or visible capacity, actual weight will apply from Paulding, O., to Findlay, O., 153 cents net ton.

Docket 87580 (1)—Proposed to establish on stone, crushed, in bulk in open-top cars, carload minimum weight 90 percent of marked capacity of cars, except that when car is loaded to full cubical or visible capacity, actual weight will apply from Georgia, Ind., to Vincennes, Ind., 93 cents net ton.

Docket 87569 (2)—Lime, common, hydrated, quick or slaked, also agricultural and fluxing, carload, minimum weight 80,000 lbs., establish from Gibsonburg, O., to Toledo, O., 10½ cents.

CENTRAL TERRITORY RAILROADS FREIGHT TRAFFIC COMMITTEE

Docket 87540 (1)—Proposed to establish on limestone, natural ground or pulverized, in closed cars, minimum weight 60,000 lbs., from Conneaut, O., to Cleveland, East 105th Street (Cleveland), Collinwood, Wickcliffe, and Euclid, O., 213 cents net ton.

Docket 87551 (1)—Proposed to establish on sand and gravel, carload, in open equipment, minimum weight 90 percent of marked capacity of car, from Terre Haute, Ind., to Edwardsport, Ind., 160 cents net ton.

Docket 87555 (2)—Proposed to establish on limestone, natural ground or pulverized, unburned, carloads, in closed cars, minimum weight 60,000 lbs., from Greencastle, Ind.

To the Following Points:	Net Ton
Kankakee, Gibson City, Ill.	227 cents
Bloomington, Fairbury and Springfield, Ill.	245 cents
Mendota	282 cents
Peoria	257 cents

Docket 87559 (2)—Proposed to establish on stone, crushed, in bulk in open-top cars, carload minimum weight 90 percent of marked capacity of car, except that when cars are loaded to full cubical or visible capacity, actual weight will apply, from speed, Ind., to the following points:

	Net Ton
Purcell, Decker, Hazleton, Ind.	156 cents
Patoka, Princeton, Haubstadt, Stacer, Ingle, Erskine, Wansford	145 cents
King & Ft. Branch, Evansville, Ind.	140 cents

(Not subject to ExParte 162-166-168 increases.)

GENERAL FREIGHT TRAFFIC COMMITTEE EASTERN RAILROADS

Bulletin G-1765 (Carriers) — Limestone, natural, ground or pulverized (unburned) carload minimum weight 60,000 lbs., from Carey, O., and other northwestern Ohio Group 1 stations, to Idamay, W. Va., $3.22 per net ton in open cars and $3.72 in closed cars, including ExParte 162-B, 166-C and 168-A increases.

Bulletin G-1788 (Shippers)—Proposed to establish on lime, common, hydrated, quick or slaked, carload, from Kimballton, Va., to Winchester, Mass., $9.66 per net ton, with minimum weight of 15 tons to alternate with rate of $8.00 per net ton, minimum weight 25 tons, including ExParte 162-166 and 168 increases.

Bulletin G-1792 (Shippers) — It is proposed to establish on stone, namely, crushed or screenings (will not include agricultural limestone or ground lime-

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stone, unburned, fluxing stone or firestone, or stone coated with oil, tar or asphaltum), in bulk in open-top cars not protected by tarpaulin or other protective covering, in straight or mixed carloads, minimum weight 90 percent of marked capacity of car, from Narco, Pa., to Cleveland, O., $4.61 per net ton, including ExParte 162-B, 166-C and 168-A increases, in lieu of present rate of $9.52.

Bulletin G-1805 (Shippers)—Proposed to establish on limestone, natural, ground or pulverized, unburned, carload minimum weight 30 tons, from Narlo, Maple Grove, and other northwestern Ohio origins to Ulster, Pa., $3.59 in open-top cars and $4.44 in closed cars; to Rummerfield and New Albany, Pa., $4.07 in open cars and $4.57 in closed cars, including ExParte 162-B, 166-C and 168-A increases.

ILLINOIS FREIGHT ASSOCIATION DOCKET

IRC 511-915—Stone, crushed, minimum weight 90 percent of marked capacity of car, except that when car is loaded to full cubical or visible capacity, actual weight will apply, from Pontiac and McDowell, Ill., to points shown below:

	Miles		Rates per Net Ton	
To	(a)	(b)	Present	Proposed
Forest, Ill.	16.8	12.8	$1.23	$1.13
Strawn, Ill.	23.8	19.8	1.23	1.13
Sibley, Ill.	28.4	24.4	1.23	1.13
Garber, Ill.	33.3	29.3	1.23	1.13
Gilson City, Ill.	36.5	32.5	1.23	1.13
Tyler, Ill.	39.7	35.7	1.23	1.13
Proctor, Ill.	40.7	36.7	1.23	1.13
Foosland, Ill.	44.6	40.6	1.23	1.13
Osman, Ill.	49.5	45.5	1.23	1.13
Lotus, Ill.	47.8	43.8	1.23	1.13
Blue Ridge, Ill.	51.7	47.7	1.23	1.13
Mansfield, Ill.	55.6	51.6	1.23	1.13

(a) Miles from Pontiac, Ill.
(b) Miles from McDowell, Ill.
Rates include all increases.

SOUTHWESTERN FREIGHT BUREAU DOCKET

Docket 51956—Proposed to establish on crushed stone, Richards Spur, Okla., to Pritchett, Colo., rate of $3.28 per net ton, not subject to ExParte 162-B, 166-C or 168-A increases, minimum weight marked capacity of car.

TRANSCONTINENTAL FREIGHT BUREAU APPLICATIONS

Docket 6585 (Shipper) — Proposed to establish on gypsum, crude, crushed or powdered, carload from Cody and Thermopolis, Wyo., to the following points:

	Open Cars	Closed Cars
Delta, Utah, Fillmore, Utah	46c	47½c
Milford, Utah	47c	48½c
Lund, Cedar City, and Modena, Utah	49c	50½c

Minimum carload, 40 tons.

FREIGHT TRAFFIC COMMITTEE TRUNK LINE TERRITORY RAILROADS

Docket TL M-591 (Shippers)—Proposed to establish on stone, broken or crushed, carload minimum weight 90 percent of marked capacity of car, from Kingston, N. Y., to Middletown, N. Y., $1.24 per net ton, including ExParte 162-B, 166-C and 168-A increases, in lieu of present rate of 62 cents.

Docket TL M-599 (Shippers)—Proposed to establish on limestone, crude, fluxing, foundry and furnace, in bulk, in open-top equipment, carload minimum weight 70 tons from Cedar Hollow, Pa., to Swedeland, Pa., and from Devault, Pa., to Ivy Rock, Pa., 65 cents per net ton, including ExParte 162-B, 166-C and 168-A increases.

Docket TL 580 (Carriers)—Proposed to establish on crushed stone or screenings, in straight or mixed carloads, carload, minimum weight 90 percent of marked capacity of car, from Martinsburg, W. Va., Security, Md., and Grove, Md., to Kensington, Md., $1.35 per net ton, including ExParte 162-B, 166-C and 168-A increases, in lieu of present rate of $1.58.

WESTERN TRUNK LINE NEW APPLICATIONS

Docket X-E-41-1203—Proposed to establish on crushed stone (broken stone ranging in size up to 200 lbs. weight), in bulk, in bags, or in barrels, but not including gypsum rock or asphalt rock, from Richards Spur, Okla., to Pritchett, Colo., a rate of $3.28 per net ton, not subject to ExParte 162-B, X-166-C or X-168-A increases.

Docket X-E-41-1214—Proposed to establish on limestone, agricultural, ground or pulverized, in open-top equipment, carload, from Huntington, Mo., to Centralia, Mo., 80 cents per net ton, including all increases.

Docket E-41-1212 (Shipper) — Stone or limestone, ground, carload, from Valmeyer and Prairie du Rocher, Ill., to destinations in Wisconsin, Minnesota and Michigan. Proposed—publish present East St. Louis, Ill., combination rates, taking maximum increases as joint through rates in cents per ton of 2000 lbs., not subject to X-162/166/168 increases.

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Proof of this statement boils down to this:

1. Heavy-duty truck buyers keep records of hauling costs right down to the last penny. On the basis of what these records show, these cost-conscious men have bought more heavy-duty International Trucks than any other make for 18 straight years.
2. The extra values that for almost two decades have assured America's most exacting truck buyers of better performance at lower cost per mile are engineered into every new International Truck from the smallest to the largest.

Every new International Truck from 4,200 to 90,000 pounds gross vehicle weight offers heavy-duty engineered stamina and operating economy combined with new comfort and ease of handling.

You get new comfort and driving ease in the "roomiest cab on the road." Step into the Comfo-Vision Cab and discover how much more "move-around room" there is in the "roomiest cab on the road." Note how easy it is to adjust the wide seat to just the right position.

Look out through the one-piece, scientifically curved Sweepsight windshield. Place your hands right where they feel natural for driving—and you'll find them gripped around the sturdy steering wheel. And just wait till you start going—you'll enjoy more positive control . . . thanks to new Super-steering.

You get more all-'round truck value in every new International Truck. See the new valve-in-head truck engines, new rear axles, new features throughout—all proved under actual operating conditions. Get the facts about new Internationals—the world's most complete line of trucks.

See for yourself . . . see your International Truck Dealer or Branch, *soon.*

International Harvester Builds McCormick Farm Equipment and Farmall Tractors . . . Motor Trucks . . . Industrial Power . . . Refrigerators and Freezers

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INTERNATIONAL TRUCKS

INTERNATIONAL HARVESTER COMPANY CHICAGO

Look for the name AMSCO® on the dipper you specify...

Amsco Engineering — plus Amsco Manganese Steel Construction — means more efficient, more profitable shovel operation.

Profit is determined by *handling costs per yard,* and here are 2 important reasons why you can lower those handling costs with AMSCO Dippers:

Austenitic Manganese Steel—For Longer Life— The more you use an Amsco dipper, made of manganese steel throughout, the harder it gets! Surfaces that are subject to impact and abrasion actually work-harden and take on a high polish for added wear-resistance.

Manganese Steel—"the toughest steel known"—withstands the most severe breaking stresses.

AMSCO Engineering—For Better Operation— Years of Amsco design experience bring you a *complete line,* from which you can select dippers "custom-engineered" to your own requirements . . . for deep penetration, full loading and positive dumping. Whether you need manganese steel Welded, Missabe, Renewable Lip types, or special designs for unusual service, *you'll get longer wearing life and greater economy when you specify Amsco.*

NOW! Prompt delivery of Amsco Dippers and Parts

AMSCO®
WELDING PRODUCTS

The fast, low-cost way to get worn or damaged equipment back in service.

Amsco hardfacing rods make important on-the-job savings . . . keep down time at a minimum. Contact your supply house or Amsco representative for information on the complete Amsco line of Welding Rod, Weldments and Repointer Bars.

Get the facts on the complete Amsco Line...

This 40-Page booklet is packed with information on Amsco Dippers, and parts for shovels and draglines. Write today for your free copy . . . ask for Bulletin No. 547 DS.

AMERICAN Brake Shoe COMPANY

AMERICAN MANGANESE STEEL DIVISION
396 EAST 14th STREET — CHICAGO HEIGHTS, ILL.

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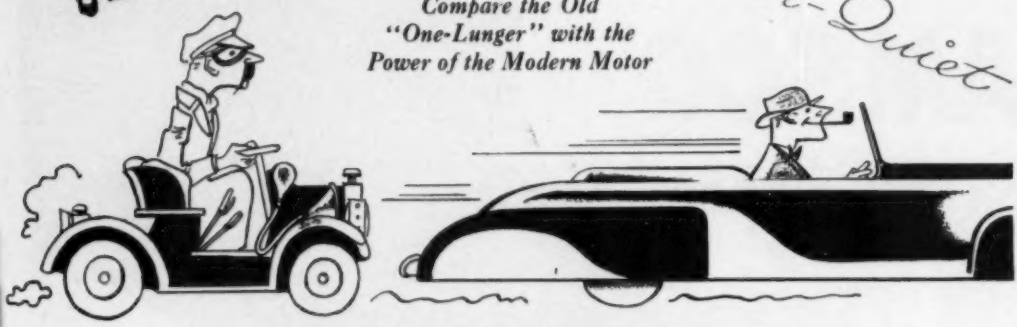
JERK ! BANG !

Today--
Smooth-Quiet

Compare the Old "One-Lunger" with the Power of the Modern Motor



. . . so ROCKMASTER "16" compares with old blasting methods

In the ROCKMASTER "16" Blasting System, pioneered by Atlas, sixteen milli-second delay electric detonators, all starting together, fire at controlled split-second intervals over a period of only a little over a half-second.

Talk to any experienced blaster who has compared ROCKMASTER split-second blasting methods with ordinary instantaneous or delay-action blasting. He'll tell you why it's like comparing a modern multi-cylinder automobile with an old-time one- or two-cylinder model! ROCKMASTER blasting gives a smooth flow of blasting power that means control over throw and breakage never before possible—*with far less noise and vibration!*

Your job may call for two, three, or even all sixteen ROCKMASTER detonators. We help you select them to fit a particular job in quarry, strip pit, mine, construction . . . on the surface or underground. Drill pattern is adjusted to fit the system, often with substantial savings in drilling and dynamite.

Write for your copy of booklet on the ROCKMASTER "16" Blasting System. It includes diagrams for typical loading in quarries, strip pits, mines and many types of construction.

Less Bark *More Bite*

ROCKMASTER "16" TIMINGS

Rockmaster No.	Avg. Time of Each Delay from Zero (milli-seconds)
0 (zero)	0 (inst.)
1	8
2	25
3	50
4	75
5	100
6	125
7	150
8	175
9	200
10	250
11	300
12	350
13	400
14	450
15	500
16	550

ROCKMASTER: Reg. U. S. Pat. Off.

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CHEMICALS ATLAS EXPLOSIVES

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These 3 Features Reduce Sizing Costs

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1. BALANCED CIRCULAR MOTION to every part of screen surface on *Ripl-Flo* screen utilizes every sq ft of cloth area . . . results in high capacity and economy.

2. EASE OF MAINTENANCE Only two bearings to lubricate instead of four! It's easy to tension or change screen cloth because clamping plate tension bolts are easily accessible — no stationary frame in the way.

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Why not find out first-hand how you may be able to reduce costs on your job? The Allis-Chalmers representative in your area is an expert on screening equipment. Call him, or write direct for **Bulletin 07B6151B.** A-3091

ALLIS-CHALMERS, 974A SO. 70 ST.
MILWAUKEE, WIS.

"Does an excellent job of sizing. No trouble."

—That's what Mr. George Bozich, owner and manager of Monon Crushed Stone Co., Monon, Indiana, has to say about the *Ripl-Flo* vibrating screen shown above — one of four Allis-Chalmers screens installed in this crushing plant.

Ripl-Flo and *Texrope* are Allis-Chalmers trademarks.

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Sales Offices in Principal Cities in the U. S. A. Distributors Throughout the World.

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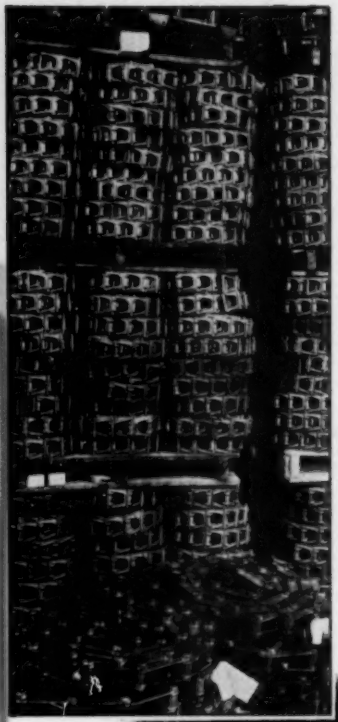


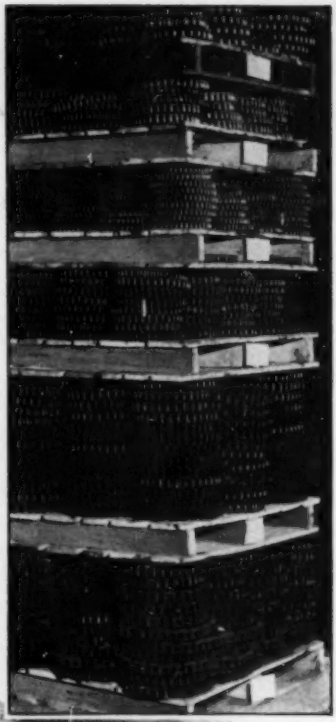
Popular types and sizes available at once from Columbus—from our distributors in all industrial centers

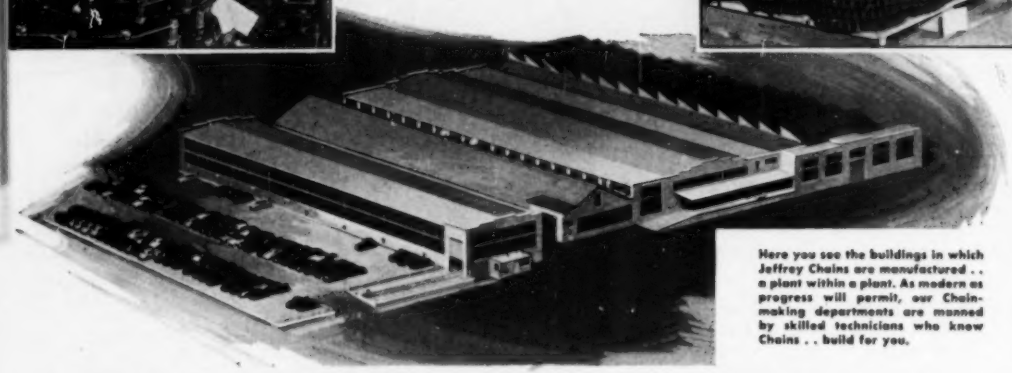
NEED CHAINS? We can ship immediately from our large stock here at home or you can contact any one of our authorized Stock-carrying Distributors, strategically located throughout the United States to better serve your needs.

Our recently-enlarged Chain-making establishment (see photo below) is fully equipped with new high-speed tools . . every modern facility to make chains scientifically better . . faster.

A large assortment of Sprockets, Gears, Pulleys, Babbitted Bearings and other Transmission items are also available for prompt shipment, as well as a line of Spiral Flights, Belt Idlers, etc.

We will be glad to take care of your requirements . . will handle those "Ship At Once" requests promptly. May we hear from you?





Here you see the buildings in which Jeffrey Chains are manufactured . . a plant within a plant. As modern as progress will permit, our Chain-making departments are manned by skilled technicians who know Chains . . build for you.

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Established 1877

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Complete Line of Material Handling, Processing and Mining Equipment

Baltimore 2	Chicago 1	Detroit 13	Jacksonville 2	Pittsburgh 22
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A SPECIAL SECTION OF PIT & QUARRY

JOLTCRETES

CLIPPER STRIPPERS

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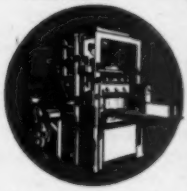


MIXERS

Genuine Parts for STEARNS Machines COME ONLY FROM HE!

STEARNS 15

SKIP LOADERS

Don't let anyone fool you! Non-genuine parts *may* fit, but *are not made to fit!* They *may* wear, but without the Stearns name stamped into them and the Stearns Warranty and special machines developed by Stearns behind them, you never can be sure of the necessary hardness—the lasting quality service of *the real thing!* Quick delivery of *Genuine* Regular and Special Stearns Parts, including Ni-Hard Blades and Liners for Mixers, Alloy H Packer Heads for Joltcretes and Alloy H Cores for all Stearns machines.

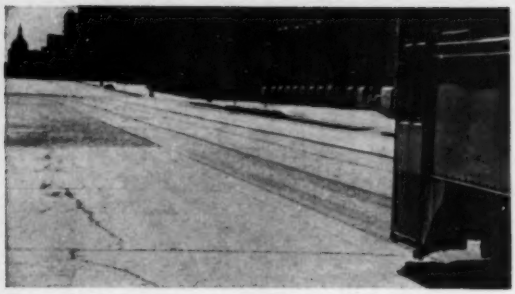
Shipping Room of the Stearns Manufacturing Company

PERFORMANCE IS PERFECTION ...PERFECTION IS PROFIT!

STEARNS

MANUFACTURING COMPANY · INC

ADRIAN • MICHIGAN



Ten Years Ago...

this test paving was laid in Minneapolis —the first commercial use of Atlas Duraplastic air-entraining cement. Badly scaled background section was made with regular cement. Foreground concrete was laid at the same time with Duraplastic. Here are both sections, photographed in July 1949, after ten severe winters, heavy applications of de-icing salts—convincing proof of durability, lasting good appearance of Duraplastic. Longitudinal structural crack shows some ravelling. Note perfect transverse joint.

Today.... Manufacturers rely on DURAPLASTIC* for superior concrete products

More and more products makers, noting the growing acceptance of Atlas Duraplastic air-entraining portland cement for paving and structural work, have come to rely on Duraplastic for superior concrete products at no extra cost. They use it for concrete pipe, block, brick, drain tile, silo staves and other products.

Today, for machine-made products, like the pipe shown here, manufacturers find they can use a damper mix—one that's more cohesive, holds together better and feeds easily through machines. Finished units exhibit greater resistance to passage and absorption of water. Appearance and face-texture are generally improved. Edges and corners are clean-cut, truer.

Atlas Duraplastic complies with ASTM and Federal Specifications, calls for no unusual changes in procedure and costs no more than regular cement.

Send for free new booklet, "A Decade of Atlas Duraplastic Air-Entraining Portland Cement." Write to Universal Atlas Cement Company (United States Steel Corporation Subsidiary), Chrysler Building, New York 17, N. Y.

"Duraplastic" is the registered trade mark of the air-entraining portland cement manufactured by Universal Atlas Cement Company.

OFFICES: Albany, Birmingham, Boston, Chicago, Dayton, Kansas City, Minneapolis, New York, Phila., Pittsburgh, St. Louis, Waco.

PQ-D-184

ATLAS DURAPLASTIC

TRADE MARK REG. U. A. C. CO.

AIR-ENTRAINING PORTLAND CEMENT

MAKES SUPERIOR CONCRETE PRODUCTS AT NO EXTRA COST

"THE THEATRE GUILD ON THE AIR"—*Sponsored by U. S. Steel Subsidiaries—Sunday Evenings—NBC Network*

NEWS OF CONCRETE MANUFACTURERS

N.C.M.A. Issues Report On Performance Study of Magnesium Plain Pallets

The National Concrete Masonry Association has released to member companies a complete report of its study of the performance of magnesium plain pallets in block plants. Reports from the 14 member plants which co-operated in the investigation indicate in general that the lightweight pallets gave excellent performance under most plant operating conditions. The full report is available only to members of the association.

The Dow Chemical Company of Midland, Mich., co-operated in the study by furnishing each of the participating plants with a set of ten 5/16- by 18½- by 26-in. pallets made from hot-rolled plate magnesium alloy, with a nominal composition of 99 percent magnesium and 1 percent zinc. The pallets weigh 9.6 lbs. each, compared with weights of 33.3 and 42 lbs. for ¼- and 5/16-in. steel pallets of the same area.

Gifford-Hill Pipe Company Expands Fort Worth Plant

At the Gifford-Hill Pipe Company's yard in Fort Worth, Tex., a Model 24 Martin pipe machine was recently installed, according to word from the Martin Iron Works, Los Angeles, Calif.

Addition of the Martin machine to the Gifford-Hill facilities is in line with an expansion program undertaken by the firm to cope with increased demand for pipe in this area.

Colorado Pre-Mix Concrete Sold After 5-Year Operation

Sale of the Colorado Pre-Mix Concrete Company at Denver, Colo., was recently announced by H. E. Stice, former owner of the business. The sale price was approximately $600,000; and the new owners are R. B. Millay of Waco, Tex., Irwin Rendle, Rawlins, Wyo., and Erskine R. Myer, a Denver attorney.

Under the new management the firm name will remain the same. Although the personnel will also be unchanged, the present proprietors contemplate expansion plans. The plant now serves the Denver area. Mr. Stice, who founded the business five years ago, intends to return to private business.

Ft. Wayne Firm's New Plant To Make Permacrete Beams

Scheduled to open for production in June is the $100,000 plant of A. R. Irving at 1602 Alabama Avenue, Fort Wayne, Ind. The firm has acquired patent rights to the "Clorflor" process of the Permacrete Products Corporation of Columbus, O., for the Fort Wayne territory. The Irving plant is reportedly the second of its type in the country.

Clorflor is a steel-reinforced precast concrete member with a 6½-in. core throughout its length. The Fort Wayne plant will produce 60-ft. beams, which are used primarily in floors and roofs.

Pelsue Heads Research and Advisory Service for Jaeger

H. F. Garvin Pelsue, former president of the Metropolitan Sand and Gravel Corporation, New York, N. Y., and a past president of the National Ready Mixed Concrete Association, is now associated with the Jaeger Machine Company, Columbus, O., in charge of research. He also heads Jaeger's advisory engineering service to ready-mixed concrete producers.

Mr. Pelsue's experience in the concrete industry covers the full period of its development. After 20 years in production and sales with Graham Brothers, Inc., of Los Angeles, including seven years as executive vice-president, he went to New York in 1942 to assume management of Metropolitan Sand and Gravel Corporation, and to direct its expansion into the ready-mixed concrete

H. F. G. Pelsue

business. He became president of Metropolitan in 1944 and served until 1949, during which period the company became one of the largest producers of concrete, as well as aggregates, in the metropolitan New York area.

Flat-Based Reinforced Concrete Pipe Popular For Culverts, Galleries

Flat-based reinforced concrete pipe is gaining in popularity for cattle passes, pedestrian underpasses, culverts and utility galleries. This pipe is manufac-

Flat-bottom section being placed in position.

tured by Universal Concrete Pipe Company, Columbus, O.

Pedestrian underpasses of flat-base pipe are promoting safety near schools. In culvert construction the pipe conforms to the contour of the land and the flow of the stream. Large-size flat-base pipes provide strong galleries to protect electric cable, telephone lines, gas or water mains. There is ample room for workmen to make repairs and installations. For this reason the pipe also makes safe, efficient manholes.

Perma-Stone's Big Display Captures Grand Prize Again

Elaborate preparations made by the Perma-Stone Company of Dallas, Tex., and Oklahoma City, Okla., for another prize-winning exhibit in the 1950 Dallas Home Show paid off, for the grand prize went to this firm for the second time. Last year's grand prize winner was Perma-Stone, and according to C. T. Woodard, president of the concern, the exhibits of the company had previously won five other major awards in similar shows in the Southwest.

In Kern County, Calif., the Friant-Kern Canal entered Kern County for the first time as construction workers and equipment brought the conduit to within 40 miles of Bakersfield. The United Concrete Pipe Co., Baldwin Park, Calif., has the contract for manufacturing and laying the first 25 miles of the distribution system.

• When one of our traveling editors called on Lawrence Holzman, president of Multiplex Machinery Corporation at Elmore, O., not long ago, he had a somewhat unusual opportunity to join in welcoming two newcomers to the concrete products industry. Mr. Holzman, who has recently become an enthusiastic photographer, recorded the occasion on film. Left to right in the picture are William M. Avery, senior field editor of The Concrete Manufacturer, and William Hopkins and Leo Bonoff of The Tollen Company, North Haven, Conn. Their new plant will be completely equipped by Multiplex.

N.C.M.A. Officers Visit Katterjohn and Paducah

Officials of the National Concrete Masonry Association and members of their families were recent guests of George Katterjohn Jr., president of the Katterjohn Concrete Products Company at Paducah, Ky. Members of the party were Mr. and Mrs. Glenn C. Barnes and daughter of Syracuse, N. Y.; Mr. and Mrs. Carroll Strohm Jr., of Nashville, Tenn., and Hardy Magrath of Birmingham, Ala. Mr. Barnes is president of N.C.M.A., and Mr. Strohm is treasurer.

On a nation-wide tour of inspection, Mr. Barnes visited Katterjohn plants at Paducah and Owensboro.

Standards Bureau Submits Concrete Mixer Standard

According to an announcement issued by the Commodity Standards Division of the National Bureau of Standards, a recommended commercial standard for concrete mixers (construction mixers and pavers—export classification) has been submitted to producers and exporters for acceptance.

Proposed by the Mixer Manufacturers Bureau of the Associated General Contractors of America, the recommended commercial standard gives general and detailed requirements for tilting and non-tilting types of mixers in sizes ranging from 3.5 to 112 cu. ft. nominal capacity and for paving mixers of 27 and 34 cu. ft. nominal capacity.

St. Louis Firm's New Plant First of Its Kind in Area

Installation of an automatic concrete mixing plant at the Concrete, Inc., facilities, 650 Rosedale Ave., St. Louis, Mo., has doubled the output of the firm, according to the St. Louis Chamber of Commerce. Officers also contemplate the erection of a one-story warehouse.

The newly installed plant is said to be the first automatic mixer in this area. Concrete, Inc., headed by R. F. Powell, has five plants in the St. Louis district.

D. H. Gott Heads Dealer Sales For Great Lakes Carbon

D. H. Gott

Donald H. Gott has been appointed manager of dealer sales of the Building Products Division, it was recently announced by T. C. Carter, vice-president of Great Lakes Carbon Corporation. He will be in complete charge of sales for Permalite plaster aggregates, concrete aggregates, acoustical aggregates and other building products in the entire United States.

Mr. Gott comes to Great Lakes from the Mengel Company, where he was sales manager of the Door Division. Previously he was with the United States Gypsum Company for 13 years as sales manager of a product division and as assistant product merchandising manager. Mr. Gott's headquarters will be at the company's executive offices in New York.

S. F. Bartlett, formerly secretary-treasurer of the Ready-Crete Corporation of Milwaukee, Wis., was recently elected president of the firm. Robert J. McBride was named vice-president, and Douglas P. Bournique secretary-treasurer.

M. L. Funderburk, president of the Terrebonne Lumber and Supply Company at Houma, La., recently announced that his firm has opened a ready-mix concrete plant in that city.

Committee Alters Set-up Of R.M.C. Safety Contest To Include 3 Groups

According to Executive Secretary Vincent P. Ahearn, the N.R.M.C.A.-N.S.G.A. joint committee on safety in January passed decisions giving recognition to companies completing the contest year without a lost-time injury, an injury to a non-employee, or a property damage accident.

Instead of presenting two safety trophies in the future, three groups will be established, and a trophy will be awarded to the winner in each classification: companies producing 50,000 cu. yds. or less in the 12-month period; those producing 50,001 to 100,000 cu. yds.; and those producing more than 100,000 cu. yds. Should there be more than one firm in any group with accident-free records, the trophy will be awarded to the one with the largest production in that particular class.

Every firm with an accident-free record which does not win a trophy will receive a "Certificate of Achievement in Safety." In addition, "Certificates of Accomplishment in Safety" will be presented to employees of such firms, including the three trophy winners.

Participation in the contest is on the basis of companies, rather on the basis of plants. In the event that a company has more than one plant, its report should include *all* plants. Presentation of the three trophies, supplied by PIT AND QUARRY, will be made at the New Orleans convention next February to winners of the contest ending on June 30, 1950.

Raymond Concrete Pile Co. Submits Low Bid on Dam Job

A $2,395,570 figure submitted by the Raymond Concrete Pile Company, New Orleans, La., was reported to be the low bid on a contract to build a concrete pile foundation for the Morganza floodway control dam, according to an announcement made by United States Engineers.

Work outlined in the project includes excavating approximately 100,000 cu. yds. of earth and supplying and installing 364,800 linear feet of reinforced concrete piling. The piling will form the base for the Morganza floodway control dam three miles north of the town of Morganza. The government estimate was reported to have been $2,855,484.

In a transaction involving "upwards of $150,000" the Gravel Products Corporation of Buffalo recently acquired land and real property formerly owned by the American Radiator & Standard Sanitary Corporation. The new owner will utilize the buildings for the production of ready-mixed concrete.

O. W. Maddox has been appointed manager and director of sales for the Gulf Concrete Pipe Company, Inc., 4410 Harrisburg Street, Houston, Tex.

Lightweight Aggregates, Concretes Investigated By Government Agency

A report recently issued by the Housing and Home Finance Agency, Washington, D. C., entitled *Lightweight Aggregate Concretes*, presents information on various lightweight aggregates and on concretes made of plastic mixes with these aggregates. It is of interest particularly to those concerned with the technical aspects of this subject.

Approximate relationships are indicated between the properties of the aggregate and those of the resulting concrete as to density, compressive strength, drying shrinkage, elastic modulus, etc.

According to the N. C. M. A.'s technical report on the bulletin, "although the information relates more directly to concrete made of plastic mixes, it should also reflect, in a general way, the effect of aggregate properties on the properties of concrete made with the stiff, semi-dry mixes used in the manufacture of block." Copies may be secured for 20 cents each from the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C.

Hendrickson Joins Staffs Of Pipe Associations

John G. Hendrickson has joined the staff of the American Concrete Pipe Association and the American Concrete Pressure Pipe Association as research

John G. Hendrickson

engineer, effective July 1, 1950, it was announced by Howard F. Peckworth, managing director.

Mr. Hendrickson was graduated from Princeton University with high honors in 1939, with a degree of Bachelor of Science in civil engineering. Subsequently he was associated with the American Bridge Company, but returned to Princeton as an instructor of engineering drawing and elementary surveying. In 1943 he entered the Civil Engineering Corps of the U. S. Navy. He saw three years' service as an officer of an underwater demolition team and was awarded the Silver Star for his work. Discharged in 1946, he returned to Princeton as an instructor in civil engineering and at present is an assistant professor in civil engineering.

His professional memberships include the American Society of Civil Engineers, American Concrete Institute, and the American Society of Military Engineers. Mr. Hendrickson will be located at the headquarters of the American Concrete Pipe Association, 228 North LaSalle Street, Chicago 1, Ill.

At the plant of the Independent Concrete Pipe Company, Lockport, Ill., a Lorain self-propelled crane was used to place an outside form around a core and steel reinforcing. Sections of 72-in. pipe were being cased on the day this photograph was taken. Each section required 2½ cu. yds. of concrete, reinforced with steel and weighing 4½ tons when completed.

Liberty, Tex., Area to Have Ready-Mixed Concrete Plant

J. Roy Slover, president of the Tri-County Lumber Company, Inc., Liberty, Tex., announces that his firm is erecting a $40,000 plant for the manufacture of ready-mixed concrete. Original plans scheduled the plant to be in operation on May 1.

A 32-ft. steel tower, topped by a 100-ton bin, forms the main part of the plant. The firm will begin with two transit-mix trucks; later, as business warrants, more trucks will be added.

Detroit R.M.C. Truck Drivers To Get 12-Cent Hourly Raise

More than 250 truck drivers for Detroit ready-mixed concrete plants were recently granted a 12-cent hourly wage increase. Mike Nicoletti, president of the Teamster's Local 247 (AFL), stated that the contract also provided for a five-cent increase on January 1, 1951, and an additional five-cent increase on May 1, 1951. The 12-cent increase, retroactive to May 1, will bring the hourly rate to $1.87.

Included in the contract was an agreement on the part of the companies to pay $1 a week for each worker for hospital insurance.

Warner Co. Doubling Output Of Market Street Plant

According to recent reports, The Warner Company of Philadelphia is doubling the capacity of its central-mix concrete plant at 200 South Market Street in order to meet the local demand.

In order to take care of obsolescence and additional capacity needs, the company is purchasing 19 concrete mixing trucks, which will bring its fleet to about 170. With the additional facilities under construction, the firm will have a mixing and delivery capacity of 500 cu. yds. (or 1,000 tons) per hour.

● Truck-to-trench delivery, seldom possible with 72-in. reinforced concrete pipe, was effected by Universal Concrete Pipe Company on a recent $200,000 storm sewer project at Columbus, O. The contractor contacted personnel at the Universal plant when more pipe was needed. Sections arrived at the job site on schedule, eliminating the usual street stacking and double handling.

The Very Latest in Block Plant Design

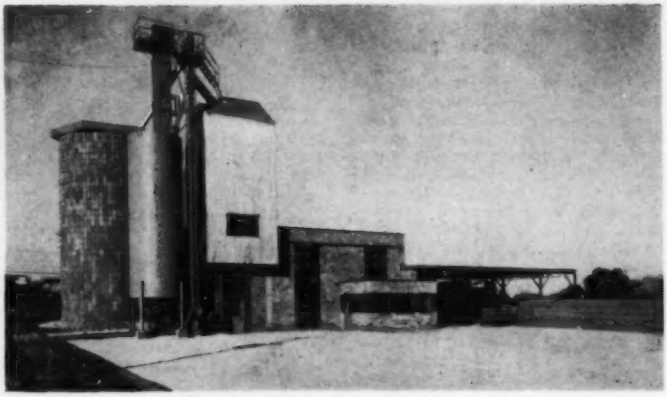
THE Carter-Waters Corporation of Kansas City, Mo., major Midwestern haydite aggregate producer, recently completed construction of a new concrete block and products plant. As the last major link in an extensive three-year expansion program, the new plant represents the very latest in modern concrete block plant design.

The company, with offices in its own building 2440 Pennway, operates a haydite aggregate plant at New Market, Mo.* From this plant, which has been in operation over a year and a half, haydite aggregate is shipped to the Carter-Waters new concrete products plant in Kansas City and to other concrete products manufacturers and consumers in the United States. Refractory haydite aggregate is shipped to foreign consumers as well as domestic.

Until October of last year Carter-Waters operated the old haydite aggregate and haydite concrete products plant at 32d and Roanoke. At that time this plant was abandoned. It was at this location that haydite was literally "invented" almost a quarter of a century ago. Since then its use in concrete products has steadily increased.

Actual operation of the Carter-Waters haydite concrete products plant began last October 12. The plant is located at 5220 Winner Road, Kansas City. In addition to being centrally located in relation to new and growing industrial and residential areas, the plant is ideally situated for serving more distant jobs in Kansas City by virtue of easy access to main crosstown thoroughfares. Neil Lidstone, Carter-Waters engineer and now plant superintendent, planned and supervised the building of the plant. Archer, Cooper and Robinson were the architects, and the Long Construction Company was the contractor.

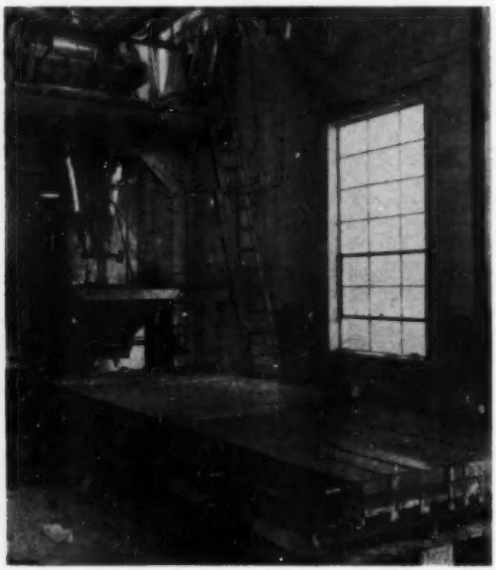
Behind the designing and construction of this ultra-modern concrete block producing facility were



• General view of Carter-Waters Corporation's new Kansas City block plant. Notice the architectural trimness of the buildings. The haydite-stave silo provides ground storage for haydite, while the round bottom steel bin is used for storing cement.

*See Avery, William M., *Haydite Production*, CONCRETE MANUFACTURER, September, 1948, page 158.

• Overhead storage consists of a 230-bbl. silo for cement and three 50-cu. yd. bins for aggregate.



• Precast joists and lintels are formed on this vibrating table. Concrete is distributed over the form by a traveling hopper suspended from an overhead monorail.

• View of the block manufacturing section of the plant, showing the new block machine. A 50-cu. yd. mixer supplying the block machine is located on the mezzanine floor.

three primary objectives: first, to mechanize as much of the operation as possible; second, to build the plant in such a way and with the best materials so that maintenance would be reduced to the rock-bottom minimum; and third, to provide for future expansion of the manufacturing operations.

Cement is delivered to the plant in hopper-bottom railroad cars and unloaded in the conventional manner—screw to bucket elevator to a Heltzel 230 bbl. steel overhead storage bin. Heltzel also supplied the screw conveyors and bucket elevators. Ground storage for cement consists of a round hopper-bottomed steel tank, 10 ft. in diameter and 34½ ft. high with a capacity of 618 bbl. Cement may be put into overhead storage either directly from a car or by opening a valve in the bottom of the ground storage silo which cuts into the conveying system. When the overhead cement compartment is full, the cement automatically overflows into the ground storage tank.

A similar procedure is followed for unloading haydite, a rather sharp departure from standard storage and unloading provisions for aggregates now used in most block plants. This material is received in hopper-bottom cars from the company's haydite plant. Two interlocking belt conveyors carry the haydite from the track hopper to a bucket elevator which lifts the material to overhead storage bins consisting of three Heltzel 50-cu. yd. compartments. These three bins fill simultaneously from a three-legged hopper at the end of the feed chute. When the bins are full, the material backs up the feed chute to overflow into a ground storage silo. This 475-cu. yd. storage silo was constructed of haydite staves manufactured in Wichita, Kan., by the Dodson Manufacturing Company. Three hopper gates at the bottom of the silo discharge onto the unloading belt and the material is recirculated to the overhead storage.

The cement and haydite are proportioned in a Heltzel traveling weigh batcher which charges a Go-Corp 50-cu. ft. mixer for the block plant and an 18-cu. ft. model of the same make used for the precast products section. Both are located on a mezzanine floor directly above the block and precast machines. In addition, the plant was designed so that the batcher may be used to charge transit mixers.

Blocks are formed, three at a time, on a new Stearns No. 9 Joltcrete. Green blocks are transferred on steel racks from the block machine to the curing rooms with an Erickson platform lift truck. At the present time there are four curing rooms, each one measuring 13 ft. 6 in. wide by 52 ft. long by 8 ft. high. The rooms have a 12-in. haydite block wall (two 4-in. blocks with a 4-in. space for air and with 12-in. headers), and a filler-block ceiling covered with a poured concrete roof deck. In order to provide for proper water drainage, the concrete floors are sloped ⅛ in. per foot to the back of the room. Aluminum entrance doors supplied by the Universal Door Carrier Co. are of the very latest type and are equipped with special devices for tight closing. Future expansion will include four kilns on the opposite side of the aisle and, if necessary, curing rooms on both sides will be extended.

In the present curing cycle the green units are subjected to a four-hour wet cure followed by two hours of dry heat. The system employs a Campion Curing Accelerator, a device which injects saturated hot air into the curing rooms through a duct system instead of live steam, which is more commonly used in block plants. Here's how the system works:

After the air is brought up to the required temperature (between 160 and 180 deg. F.) moisture is introduced into the stream of preheated air through an atomizing spray bar. Saturated hot air enters the loaded curing room through four wall ducts located 8 in. above the floor level. Air is returned to the machine through a ceiling duct and recirculated through the heating and humidifying chambers. Circulation is provided by a fan located between the humidifying chamber and the kiln service ducts. In the two-hour drying cycle, the water is turned off and the hot air forced through the same duct system. Instead of re-

• Green units are moved to the curing rooms with fork lift-trucks. Notice the neat appearing doors which tightly seal the rooms during the curing cycle.

• The Kansas City Home Show provided Carter-Waters Corp. an excellent opportunity to display its wide range of products. More than 84,000 persons attended the show, many of whom stopped at the Carter-Waters exhibit. Through promotion stunts like this one, the company impressed present and future customers with the beauty, adaptability, and functional qualities of concrete masonry products.

turning the air to the machine, as in the wet curing cycle, the air is bypassed to the outside through a purging duct. During the drying cycle, moisture is evaporated at the rate of 200 to 600 lbs. per hour at 160 deg. F.

Because there are no stack losses the fuel consumption runs about 50 percent of that required for a boiler using the same fuel.

The present models are made of corrosive resisting aluminum, nickel-chrome alloys, and zinc-coated steel. It should last for years with the minimum of maintenance costs.

In the case of lightweight aggregate concrete mixes, which use more water than the heavier aggregate mixes, it was found advisable to start removing the surplus water during the curing process.

It is possible under ideal conditions to cube the average block four hours from the time it leaves the molding machine if it is subjected to the accelerator treatment immediately upon closing the kiln doors. This does not mean the block is fully cured, but it is at the minimum strength at which it can be handled.

In the precast section of the plant, joists and lintels are formed on a 7-ft. 6-in. by 18-ft. vibrating table. Material is distributed over the table by a traveling hopper suspended from an overhead monorail. The table, which is mounted on springs, is vibrated by two Syntron vibrators. Haydite lintels, areaways, sills, stepping stones and patio paving blocks are poured in special molds and compacted with an electric hand vibrator. The precast section of the plant was designed by August Krehbiel, Carter-Waters engineer.

The new plant now employs 14 men on one shift. Neil Lidstone is superintendent. Kemper Carter is chairman of the board of Carter-Waters Corp., and Albert R. Waters is president of the company. George Kulhavy is manager of the Building Materials Division.

Henry N. Camp, president of the Camp Concrete Rock Company, Ocala, Fla., died on April 18, 1950.

The Richards Sales Corporation, Jersey and Morris Streets, Jersey City, N. J., announces that its "Ricco" foaming agent has been successfully employed in the manufacture of lightweight tongue-and-groove concrete planks which are said to be nailable and sawable.

Meihaus Named President By Texas C.M. Association

Elected to serve as officers of the Texas Concrete Masonry Association for the current year were George A. Meihaus (Texcrete Company, Dallas and Fort Worth), president; Phil Barnard (Houston), vice-president; Vernon Cole (Waco), secretary-treasurer.

These officers and the following newly-elected members form the board of directors: Charles Crowe (Amarillo); R. P. Brown (Lubbock); and Arthur J. Clark (Pharr). The election was held at the association's annual meeting at Dallas.

Concrete Block Firm Opens Gravel Plant at Fairbanks

A new enterprise recently launched at Fairbanks, Alaska, is the Gravel Supply Company, formed by H. M. Patterson and Herman Reichmann, owners of the Fairbanks Block Company. Gravel washing and crushing equipment has been purchased and will be set up at the plant site near Fairbanks.

It was reported that the new facilities will make available for the first time in the city a supply of crushed aggregate for concrete work. Machinery is being supplied by Yukon Equipment, Inc.

During the first four months of 1950 the Perma-Stone Construction Company of Newark, N. J., enjoyed an increase of 20 percent in business. This announcement was released by Harold Gottlober, vice-president.

Concrete Batching Plants Mushroom in Los Angeles Area

mother ON THE SPOT report

CONSTRUCTION in southern California continues in high gear as builders exert every effort to supply the housing needs of a population which increases by the thousands overnight.

Heaviest activity in the past year or two has been in the orange groves near Whittier, 12 miles southeast of downtown Los Angeles, where thousands of acres of trees are being uprooted to create scores of new subdivisions. The demand for concrete is great and practically all of it is being supplied by ready-mix plants.

At the close of the war, the only batch plant in this area was one operated by the Consolidated Rock Products Company in Whittier. Within the last two or three years, however, at least seven new batching plants have sprung up to supply the demand, all within a radius of 3 or 4 miles of Whittier. This 8-to-1 expansion provides a sturdy example of the growth of an industry which has come a long way, indeed, in the last decade or so.

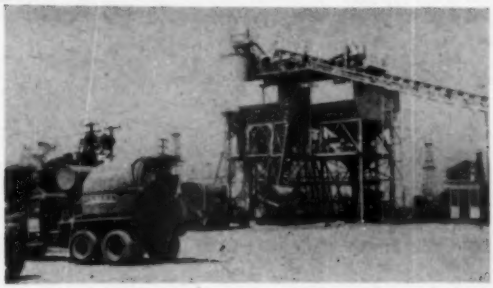
New plants include the following: Contractors' Ready Mix (2); Standard Ready Mixed Concrete Company; Consolidated Rock Products Company (Montebello); S. H. Bacon Materials Company; Western Concrete & equipment Company; and De Salvo Transit Mixed Concrete.

Today the combined batching capacity of all plants in the Whittier area is over 6,000 cu. yds. per 8-hr. day, an 800 percent gain in three years. Each plant uses bulk cement exclusively. Modern equipment for batching by weight and metering of mixing water is incorporated in each installation, a recent survey reveals.

The illustrations on page 137 depict some of these plants, together with salient data regarding their operations.

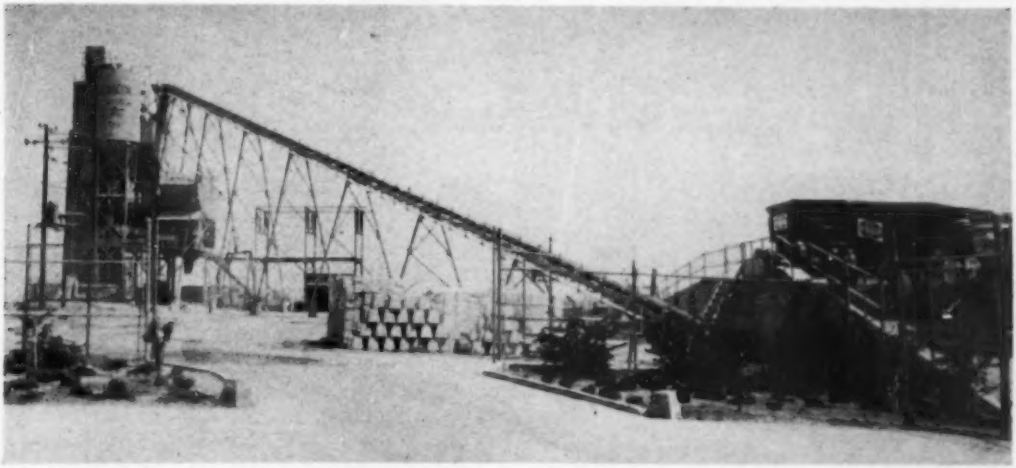
• Batching capacity at the Consolidated Rock Products Company's Greenwood Avenue plant, Whittier, Calif., is 100 cu. yds. per hour. Aggregates for loading the bins are recovered by tunnel belt conveyor. Consolidated operates a total of 110 truck mixers serving its chain of ready-mix plants in the Los Angeles area, the units being assigned to this plant and others as demand requires. Merritt Taylor is plant manager.

• The Standard Ready Mixed Concrete Company on Whittier Blvd. Batching capacity is 35 cu. yds. per hour. A low-cost plant catering to small and medium-size jobs, its six Challenge 3-cu. yd. truck mixers are adapted for operation in small areas inaccessible to larger mixer units. There are no bins, and aggregate in the ground storage is charged to the weigh-batcher in the pit by a Scoopmobile. F. C. Horowitz is the owner-manager.



• The Western Concrete & Equipment Company's plant on Norwalk Blvd., was erected in 1948-49. It is one of the larger batching operations in southern California. Dual batch plants are served by a single aggregate conveyor and two cement silos. The total batching capacity is 275 cu. yds. per hour. Both units, one supplied by the Noble Company and the other designed and built by the company, feature air-controlled and air-actuated gates and valves. About 50 truck mixers in the fleet load at this plant and at the firm's other facilities on Bandini Blvd., Los Angeles.

• Contractors' Ready Mix No. 2 plant on the Santa Fe Springs Road has a batching capacity of 100 cu. yds. per hour. It is the newest plant in this area, having just started operations. The all-steel plant (120-ton, 4-compartment aggregates bin; 300-bbl. cement silo) was designed and built by Link-Belt Company. 14 Willard 2- and 3-cu. yd. mixers on Studebaker chassis serve both plants. George Skochdopole heads the concern.



• Batching capacity at the S. H. Bacon Materials Company's plant on Anaheim-Telegraph Road is 100 cu. yds. hourly. A 350-ft. belt conveyor delivers aggregates from the hopper to the bins of this Noble plant. The company has 15 truck mixers of 4½- and 5½-cu. yd. capacity operating out of this plant and its original plant in Huntington Park. Ray Ruh manages the Anaheim-Telegraph Road operations.

From 1944 to 1949—A Canadian Block Plant Grows Up

By WALTER E. TRAUFFER

IN the June, 1946, issue of the CONCRETE MANUFACTURER was published one of the most interesting success stories we have encountered in many years of traveling. It told how J. Cooke came to Canada from England in 1927 at the age of 18 and how he worked as a union carpenter in Burlington, Ont., until 1931, when he started his own hardwood flooring business there. This business prospered, and Mr. Cooke in 1935 added concrete block manufacture on a small scale. A power tamper was installed in 1937 and another in 1940. He purchased his first delivery truck in 1940, and at the time of the above-mentioned article had a fleet of 22 trucks. In 1941 he opened up his own sand and gravel pit at nearby Aldershot, suburb of Hamilton. In 1944 Mr. Cooke took the biggest and most courageous step of all when, still with comparatively limited capital, he built a new block plant at the Aldershot pit. He installed a Besser Super Vibrapac then and added another in 1946. He also added facilities for the manufacture of ready-mixed concrete, beginning with two 3-cu. yd. truck mixers. The 28- by 220-ft. two-story concrete block structure housed the block plant, garages, repair shops, offices, a 24-hour lunch room, sleeping quarters for the men, and a modern apartment for Mr. and Mrs. Cooke on the second floor.

• A view of the J. Cooke yard at Aldershot, Ont., Canada, showing a part of the block plant, the storage shed, the ready-mix plant, with the bin under construction, and other departments.

Early in his career Mr. Cooke realized the need for the promotion of block sales and decided to build concrete block houses and small factory buildings and sell them to the public. This practice did much to popularize concrete block construction in this area.

A few months ago the writer revisited this operation to see how it had fared under the more competitive conditions which have developed during the postwar period and also to find out if some of Mr. Cooke's earlier plans had materialized. They had, and more, too. In September, 1948, a third Super Vibrapac was installed and other related equipment was added. Three curing rooms had been added to make a total of seven, larger boilers installed, power lift trucks added, the truck fleet increased from 22 to 57, a new garage, repair shop and stockroom building built; and many other changes and additions made. A 94- by 120-ft. storage for sacked cement had been built over the kilns. While the Canadian cement shortage is now over, some American cement is still stored, both in bulk and sacks.

In the construction and promotion end of his business Mr. Cooke has also prospered. This is now known as the A. H. Ward Construction Co., with Mr. Cooke as president and A. H. Ward as vice-president. This company specializes on concrete residences. It built the first homes with radiant heat in this area. Recent projects were two large co-operative apartment build-

• A general view of the Cooke yard and plants, with the sand and gravel plant in the foreground.

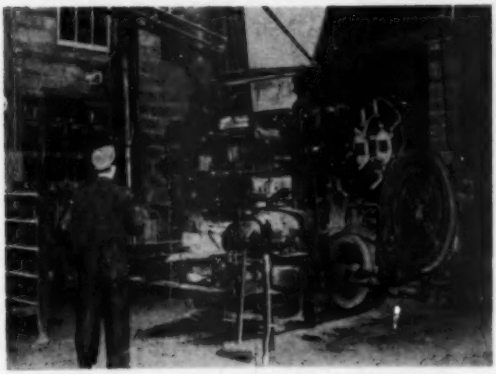
ings, one with 39 and the other with 56 four- and five-room apartments. Both are of fireproof concrete and concrete block construction with cinder block walls, reinforced concrete floors, and brick veneer. Mr. Cooke recently moved out of his small but comfortable plant apartment into a new 10-room all-concrete home on the shore of Lake Ontario. Here he also has a boathouse, complete with sports cruiser, etc. In October, 1946, Mr. Cooke took over the Grimsby Brick & Tile Co., Grimsby, Ont.., which makes chiefly clay "weeping" or drain tile and some clay brick.

The three Besser Super Vibrapacs in this plant are in a line, each with its own 50-cu. ft. Besser mixer served by a batcher on an overhead tramway. Pneumatic offbearers transfer the blocks to racks and three Truck-Man power lift trucks take the racks to the seven 12- by 120- ft. steam curing rooms. A Clark and two Erickson lift trucks are also used about the plant. After steam curing for 8 hours the blocks are allowed to soak for 2 hours. Then the kilns are exhausted for 2 hours by a large fan to eliminate condensation. Two new 100-hp. boilers have replaced the old 50-hp. units, and they heat not only the kilns but all other buildings as well.

A Clark pneumatic-tired lift truck is used in the yard, which is now about half paved—the paved section providing space for 2 million 8-in. equivalents. The rest of the yard is now used only in dry

(*Continued on page* 144)

• Right: The loader which reclaims stockpiled aggregates for use in the company's plants or for sale.



• One of the three block machines which together made 8,500,000 units (8-in. equivalents) in 1949.

• Two of the eight power lift trucks used in this plant. These are returning racks from the yard to the plant.

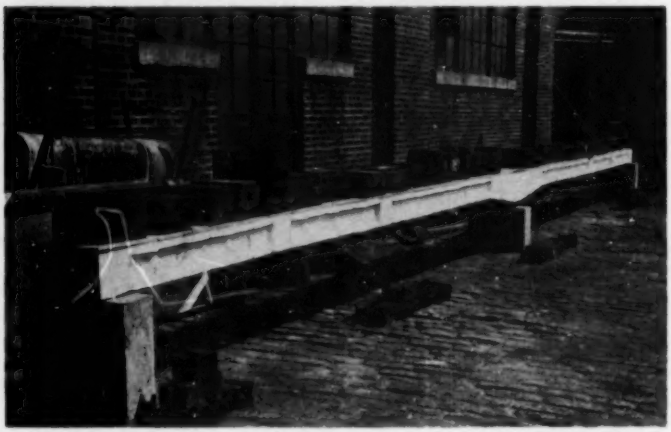
• Left: The high-lift unit which is used to stack blocks in the yard up to 20 ft. high.

• One of the fleet of 57 trucks which deliver blocks (as in this case), ready-mixed concrete, aggregates, etc.

What about prestressed concrete?

A brief discussion of theory, methods, present status, and an appraisal of future possibilities

ALTHOUGH the basic concept of prestressed concrete was covered by an American patent issued some 60 years ago, the possibilities of the method remained virtually unexplored in this country until just a few years ago. Recently developed design and construction methods, which draw heavily on American suspension bridge practice, now promise to make prestressed concrete fully competitive with other methods of construction. As a result, a vast new frontier appears to be opening up for both cast-in-place and precast concrete,



• A beam over two 20-ft. spans constructed entirely of run-of-the-mill concrete block.

and we believe our readers will want to familiarize themselves with this still relatively new development in order to appraise its possible effect upon their own markets.

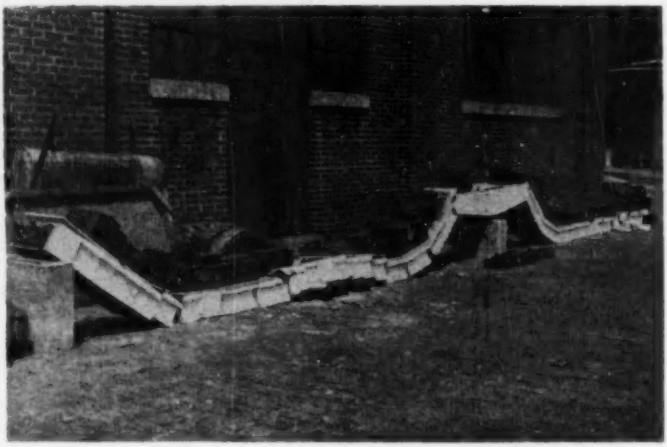
The inherent weakness of concrete as a structural material is its low tensile strength, and its almost complete lack of ductility. In pure tension concrete rarely withstands stresses of more than 400 p.s.i., or in bending about 650 p.s.i. In ordinary reinforced concrete these shortcomings are at least partially overcome by using steel rods to withstand the tensile stresses. Unfortunately, however, the concrete which is in contact with the rods cannot elongate as much as the steel does when the member is placed under load. Concrete elongates only about 0.15 per thousand before breaking, whereas steel elongates approximately four times that amount when stressed at only 16,000 p.s.i.

Thus, in all reinforced concrete structural members subjected to bending, the concrete adjacent to the reinforcing bars cracks long before the full live load is applied. In exposed construction such cracks are not only objectionable from the standpoint of appearance, but are believed to have a direct relationship to poor performance from the standpoint of durability.

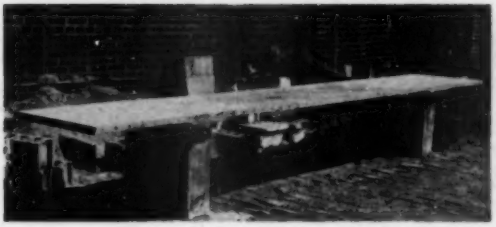
A secondary, but equally serious, disadvantage of ordinary reinforced concrete is that a relatively high percentage of the concrete is completely ineffective in resisting dead and live loads. Thus the dead load of such structures is considerably greater than would be required if all the material could be put to work. This not only imposes limitations on length of span, and the amount of live load that can be carried, but results in excessively deep structural members.

Prestressing solves these inherent shortcomings of concrete by superimposing enough compressive stress to eliminate or cancel the tensile stress, and thus utilize all the concrete in a given member to carry the dead and live loads. It represents, in short, a logical effort to capitalize on the very high strength of the material in compression, and at the same time prevent the occurrence of the kind of stresses (*i.e.* tensile) for which the material is so ill-suited.

Although the principle was recognized and patented over 60 years ago, early efforts to apply met with little success. The desired compressive stresses could be induced by means of steel bars, but they could not be maintained for any considerable length of time. Invariably the amount of prestress began to decrease shortly after load was applied, and the loss continued until all the prestress disappeared. Shrinkage and



• A load of 400 lbs. per ft. was required to destroy the beam shown in the first illustration.



• Here is a slab 1⅝ in. thick over a 10-ft. span.

• Right: As indicated here, it deflects like a two-by-four without cracks under a 1,000-lb. concentration.

plastic flow of the concrete were undoubtedly factors in this phenomenon. When the reduction in the length of the member equaled the elastic stretch in the mild steel bars, the prestress was gone.

When these factors were recognized early in the 20's, the problem was well on its way to being solved. The obvious need was for a material much stronger than mild steel, so that only a relatively small part of the prestress would be lost as a result of shrinkage and plastic flow. Cold-drawn steel wire, with strength six or seven times greater than mild steel, proved to be an ideal material for this purpose.

Although the basic concept of prestressing originated in the United States, most of the subsequent development occurred in European countries. Undoubtedly chronic shortage of steel has been an important factor in encouraging European engineers and contractors to make the widest possible use of prestressing. Although the same principles and techniques have been applied on pipe and tank work for some years in the United States, until quite recently there seemed little interest in wider application. Due to differences in wage rates and availability of materials, the methods developed abroad could not be applied literally in United States construction practice.

In 1944 the John A. Roebling's Sons Company undertook a broad research program with a view to developing methods and techniques of prestressing which would be widely applicable in the United States. One of the first basic changes to come out of this program was the use of

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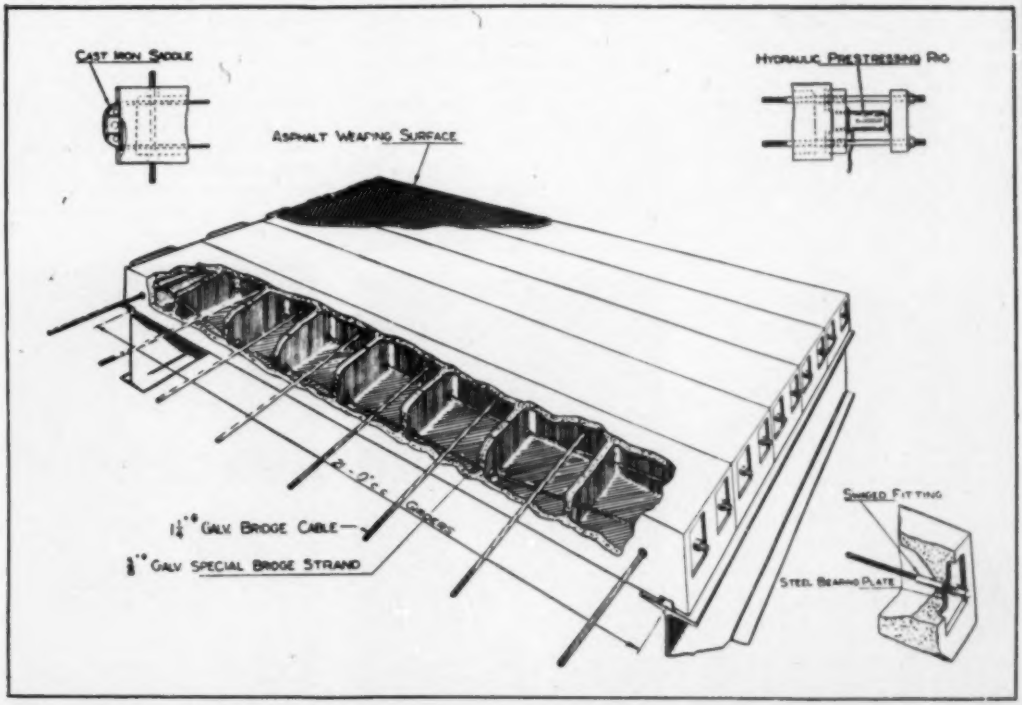


• Details of the precast floor unit in the prestressed floor now in service on an international suspension bridge between El Salvador and Guatemala.

Big-Time Ready-Mix Comes to Chicago

Material Service is Completing $1,000,000 Chain of Plants to Bring Central-Mixed Concrete to Chicago on a Major Scale

By EDWARD BRUNENKANT

WITH practically no ballyhoo, Material Service Corporation, Chicago's largest distributor of construction materials, has set up a city-wide organization for the production and sale of ready-mixed concrete. Although the volume of ready-mix placed throughout the rest of the country has grown by leaps and bounds during the 30-odd year period since the commercial production of concrete began (27,000,000 cu. yds. in 1949), its absence has been conspicuous in Chicago. A number of reasons have been advanced to explain why this material never has been available to Chicago consumers, the two most plausible of which are: (1) reported objections by certain labor unions and, (2) the fact that Chicago contractors had invested in building-mixer equipment to handle commercial dry-batched material and were not too interested in the more expensive ready-mixed concrete. Both of these reasons, along with some others, undoubtedly militated against bringing ready-mixed concrete to Chicago. It is doubtful, in this writer's opinion, at least, whether these reasons, or for that matter, any combination of reasons, were sufficiently compelling to exclude a commodity which has justified its existence so resoundingly as has ready-mixed concrete. For whatever the reason or reasons which so long excluded ready-mixed concrete from the Chicago area, it is highly significant that now almost 2000 cu. yds. of concrete a day are going out of Material Service yards —and all this volume without the benefit of any special advertising or promotion beyond the activities of the company's regular sales organization.

Material Service began producing ready-mixed concrete in Chicago late last November. Although it was not the first commercial outfit to deliver ready-mixed concrete within the city limits of Chicago their production has already become the largest in the area, and is likely very soon to be one of the major operations of the country. Present plans call for a current plant expenditure, exclusive of the cost of truck chassis and agitators in excess of $1,000,000, to erect three of the very latest automatically-controlled central-mixing plants, each equipped with the new 6-cu. yd. T. L. Smith tilting mixer, and accessory plant improvements. The first of these plants will go into operation shortly, and the other two will follow this summer. Additional facilities at other yards are under consideration.

The present ready-mix operations are entirely truck-mixing, with dry-loading of mixes at seven of the company's material yards which serve Chicago and its adjacent suburbs. In order to accommodate the increased height of the truck mixers (compared to the height of regular dump bodies), all of the dry batch aggregate and cement bins in these yards had to be raised. To speed up charging operations, the old 1-cu. yd. batchers were replaced with 5-cu. yd. units. Charging of the truck mixers with the existing dry batch equipment is a two- or three-step operation. Adequate facilities for furnishing heated concrete were

Irving Crown, executive vice president.

Harry Thomson, r.m.c. division manager.

Col. Henry Crown, chairman of the board.

installed at each ready-mix yard last winter.

At the present time Material Service has a fleet of nearly 70 truck mixers. All but a few are 4½- and 5½-cu. yd. sizes of hi-discharge type all mounted on tamden chassis. Additional units are on order, and others will be purchased from time to time as the sales warrant. When the central mix plants are in operation, the transit mixers will be used as agitators. With this arrangement, the 5½-cu. yd. size mixers will haul 7⅜ cubic yards.

Of the transit mixers now operated by Material Service, 24 of the chassis are owned and operated by independent contractors. The company, however, owns all of the mixer drums. The arrangement was worked out with several cartage contractors who had previously operated dry batch trucks, for the company was desireous of retaining their services.

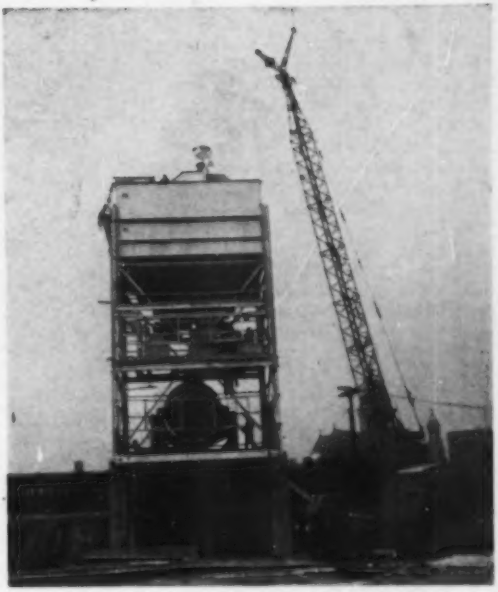
Material Service Corp. will in no manner discontinue its dry batch service. According to Harry Thomson, manager of the company's ready-mixed concrete division, many customers will want, and can more economically use, dry batched materials than they could the ready-mixed product. Ready-mixed concrete was introduced by Material Service as another extension of its varied activities calculated to provide the building industry with a more complete line of construction materials.

Dry batched mixes and straight loads of materials will be trucked from each of the yards which handle ready-mix; these stations spread-eagle the city. The ready-mixed concrete will be sold at one standard price throughout the city, irrespective of the length of the haul. Mr. Thomson pointed out, however, that hauls for city, county, and state construction will be limited by a 45-minute provision of the Illinois Highway Department regulations, which limit the time lapse between the addition of water, or the time after damp sand comes in contact with the cement, and pouring (compared with a 1½-hour limitation for the A.S.T.M. specification). Without this code provision and without considering the economies of long-distance hauls, Mr. Thomson feels that agitating equipment can move central mixed concrete 20 miles or more without deterioration or segregation.

Two of the present ready-mix yards are located adjacent to stone quarries owned by the company. Aggregates for four of the other ready-mix operations will be shipped by water from the corporation's sand and gravel plant near Lockport, Ill. The marine division of the company which operates 7 tugboats and 65 barges is well equipped to take best advantage of water transportation.

Much credit for the extensiveness of Material Service's venture into the ready-mixed concrete field must be given to the corporation's chairman of the board, Col. Henry Crown, and its executive vice-president, Irving Crown. Their action is above all else a strong affirmation of faith in the future of this industry, as well as the future of construction in the city of Chicago.

Conservative estimates place the expected annual volume of ready-mixed concrete in Chicago at around 1,000,000 cu. yds. If its growth here in any respect parallels its growth in volume in other cities, Chicago, despite its tardy start, may soon be one of the largest consumers of ready-mixed concrete in the country.



One of the three new central mixing plants being built by Material Service. Equipment includes a 6-cu. yd. tilting mixer.

A new sight to Chicagoans—a transit mixer discharging concrete at the job. When the new central batch plant is in operation, this 5½-cu. yd. transit mixer will be used as a 7⅜-cu. yd. agitator.

Until the new plants are ready, materials are being dry-batched with old facilities. All of these bin structures had to be raised to accommodate the increased heights of mixer trucks.

Block Plant Grows Up

(*From page* 139)

weather and will be paved as soon as possible. A Loadmobile in the yard is used to stack blocks up to 20 high.

The three Besser machines are now producing 3¼ pallets or nearly 10 blocks per minute, although they have been speeded up as high as 648 blocks per machine per hour. As many as 38,000 blocks have been produced by all three machines in two 10-hr. shifts. During rush seasons the plant operates on Saturdays and Sundays, but during the winter shifts are cut to 9 hours. In 1948 the plant produced 5,880,000 8-in. equivalents, and the 1949 output exceeded 8,500,000 units. The bulk of the production is sand and gravel blocks in a wide variety of sizes. Some cinder and slag blocks and red and buff concrete bricks are also made, none in modular sizes.

Most of the output of the plant now goes to Toronto and Hamilton but deliveries are made within a 75-mi. radius by truck. A fleet of 57 trucks is kept busy making deliveries of blocks and sand and gravel. Some rail shipments are made within a 200-mi. radius.

Little effort had been made to increase the production of ready-mixed concrete, but a fleet of nine truck mixers is now used. Improvements are being made to facilitate the loading of the mixers and another bin has been added.

The sand and gravel plant is unchanged except for the addition of a washer and a larger crusher, and it now has a capacity of 90 cu. yds. per hour. A shovel is used for loading in the pit and a Koehring 6-cu. yd. Dumptor hauls to the plant. Some of the wash water used is obtained from a well, but about 22,000 gallons per day must be hauled from the bay. A pipeline to the bay will be installed this year. The plant is to be moved to a new location this year, and a conveyor will be installed from the pit. Aggregates are stockpiled in the pit and reloaded into trucks by a Haiss bucket loader. Truck shipments are weighed on a new 60,000 lb. Gurney scale.

The top floor of the new garage building is used for repairing trucks and light equipment, and also houses stockrooms, etc. On the lower floor heavier equipment is repaired and serviced. There the cutting and welding are also done, as well as painting and other work. There are six Lincoln electric welders of which three are portable. All the block racks, molds, chutes, etc., are made here. A 10-ft. by 8-ft. high concrete tunnel 250-ft. long connects this floor with the block plant.

• The new two-story garage building which also houses the repair shops and the stockrooms. A tunnel under the road connects it with the plants.

Since the last writing there have been some changes in the officers and top management of the company. J. Cooke is president, Mrs. J. Cooke is vice-president, and D. Peer is secretary-treasurer. Vic Gates is general superintendent, and Clay Burt is sales manager.

Prestressed Concrete

(*From page* 141)

galvanized bridge wire, in place of the European practice of using ungalvanized wires packed with red lead. Swaged terminals, similar to those employed in the aircraft industry, have been adapted as end terminals, with the result that prestressing and anchoring are greatly simplified. In place of many parallel individual wires for prestressing, which has been the trend in European practice, prestretched galvanized bridge rope has been used, placing the fabrication of the cables in the manufacturer's plant, where it can be most economically and effectively done. The end terminals are also attached in the factory.

By anchoring the steel cables externally and dispensing with bond between the concrete and the steel, much of the speculative element has been taken out of prestressed concrete design. In unbonded reinforcing the steel is not tensioned until after the concrete has set, thus avoiding loss of initial compression due to shrinkage and plastic flow of the concrete. The cables may be shielded from the concrete by bond-preventing tubes during pouring, or threaded through recesses formed in the concrete for this purpose. This method makes it possible to verify the tension in prestressed members at any time, and also permits adjustment of the prestress if needed.

The Roebling investigations have led to the selection of the hollow box as the ideal cross-section for prestressed structural members. In addition to locating most of the concrete where it is most effective in load carrying, this practice places the prestressing cable in a dead air space where it is shielded from the elements and from acid fumes.

The significant fact about prestressed concrete is that it is fully competitive with structural steel. Its full development calls for the highest strength concrete that can be made, since the amount of prestress which can be applied is a direct function of the compressive strength of the concrete.

One of its most provocative characteristics is that it lends itself so readily to the employment of relatively short, precast units to make up long-span beams or slabs. There is no need for truly monolithic construction, since the prestress holds all of the individual units in compression. The principle is perhaps best illustrated by the application of pressure to the end pair of a group of books to hold them suspended in mid-air; as long as sufficient pressure is applied, the separate units function as a monolithic beam.

Prestressing not only lends itself readily to the use of precast units, but in many applications definitely requires such use. For economic reasons mass production of precast units is most desirable, and the desirability of using high-strength concrete (in the range of 9,000 to 12,000 p.s.i.) places an additional premium

on the rigid control that is best achieved under factory conditions.

Roebling's Americanized system of prestressed-concrete design is definitely out of the laboratory stage, although development work is still in progress. The principles have been field tested in a 100- by 150-ft. section of jointless prestressed slab in the company's Chicago warehouse. Concrete in this 3-in.-thick elastic mat was stressed to 600 p.s.i. in both directions, using two layers of galvanized bridge wires—4¼ in. o.c. in one direction, and one layer of 9/16-in. diameter galvanized bridge strand 14 in. o.c. in the other direction. In service since October, 1946, the slab is said to be crackless.

An application using precast floor sections was placed in service in 1948 on a suspension foot bridge across the Delaware River at Lumberville, Pa. Some 200 4- by 9-ft. slabs were precast in master forms at the Roebling plant, and prestressed in the long direction by ½-in. diameter high-strength rods. At erection on the site, 9/16-in. diameter longitudinal strands were threaded through the precast units, and prestressed against them with a jacking device. Designed to carry a live load of 85 lbs. per sq. ft. over a clear span of 8 ft., the resulting floor weighed only 40 lbs. per sq. ft. A load of 23,500 lbs., applied through a 6-in. diameter cylinder, was required to punch through the top of the precast slabs.

Another indication that prestressing has arrived in this country is the construction of the Walnut Lane Bridge in Philadelphia. The prestressed concrete work was done by the Preload Corporation, using wire supplied by Roebling. Although European prestressing practice was followed in this major project, it will undoubtedly serve as a timely spur to American construction talent.

As evidence that prestressing is past the study stage, Roebling has already found it necessary to prepare a specifications sheet covering prestressed concrete wire. It lists Type 1 (uncoated) wires with an allowable tensioning stress of 135,000 p.s.i. in diameters of 0.196, 0.236, and 0.276 in., and Type 2 (galvanized) wire with an allowable tensioning stress of 120,000 p.s.i. in 0.196-in. diameter.

The possibilities of prestressed concrete seem as limitless as the construction field itself, for it transforms concrete into an almost ideal elastic material. So important an addition to the many inherent advantages of concrete must open many new markets, as well as broaden existing ones.

WHICHEVER WAY YOU LOOK AT IT—
HELTZEL BUILDS IT BETTER
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On every point of comparison Heltzel batching plants are better built. Engineered for the operator to give maximum production at lower cost. Constructed for trouble-free service and long life. Write for complete information.
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WARREN, OHIO, U. S. A.
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Vento Steel Basement Windows are available in three sizes and two types — CHAMPION and Thrifty — covering two different price brackets.

CHAMPION

Heavy steel channel frame, welded throughout. Made in three sizes —available with storm sash and screen. Double-contact construction blocks wind and rain. Can be opened partially or fully (*right*).

THRIFTY

New "economy" Vento Steel Basement Window. Made for quality residential and commercial building at minimum cost. Heavy hot rolled steel, riveted construction. Three sizes — other features same as Champion Window, above. Two open positions (*right*).

VENTO STEEL LINTELS

For quick, neat construction with standard-size cement blocks. Provides groove for anchoring steel window. Width — 7"; length from 2' 6" to 5' 6". Excellent finished appearance.

Cash in . . . on the *big profit opportunity* offered by these VENTO products!

Write or wire today for complete details, including information on territories still available.

VENTO STEEL PRODUCTS CO., INC.
254 COLORADO AVE., BUFFALO 15, N. Y.

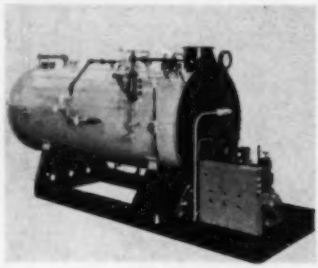
NEW MACHINERY and SUPPLIES

● Gas- or Oil-Fired Boiler

An addition to its complete line of self-contained 15 to 500 horsepower boilers has been announced by the Cleaver-Brooks Company, 326 E. Keefe Ave., Milwaukee, Wis. The new unit, called the Model LR, makes more effective use of today's low-cost fuels, heavy oils and gas, according to the maker.

Included among the main features is a rotary burner, simple, compact and fully automatic, which provides unprecedented flexibility in burning heavy oils or industrial gases. A single, low-speed, low-power-consumption blower furnishes all the air for combustion.

A totally enclosed, drip- and dust-proof panel protects all major electrical



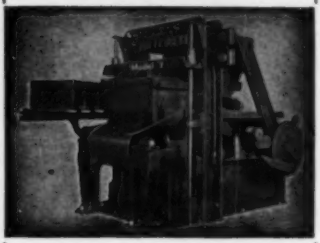
controls. Electronic combustion safety devices and dual low-water cut-offs are standard equipment. The simplified design of a combination gas-oil burner permits rapid changeover.

The Model LR is a boiler of all-welded construction, meeting standards of the A. S. M. E. boiler code, leading insurance underwriters and of burners approved by Underwriter's Laboratory.

● Car Vibrator

The "Branford" car shakeout vibrator facilitates the unloading of bulk materials such as cement, lime, fertilizers, chemicals, etc., from covered hopper-bottom railroad cars. It is available in

The Vibration Machine Supreme



Vibration under pressure — 7,200 blows per minute—and ruggedly built to give long life, the Joltcrete machine is the choice of the wise concrete-products operator. Produces clean-cut, high strength units in any size, and gets the most out of a bag of cement. Built in three sizes with capacities of 7 to 9 standard units per minute.

Stearns Clipper Stripper Machines; Stearns Joltcrete Machines; Stearns Mixers; Cast Iron and Press Steel pallets. Straublox oscillating Attachments, etc. Repair parts for: Anchor, Stearns, Blystone Mixers and many others.

ANCHOR CONCRETE MACHINERY CO.
G. M. Friel, Manager — Columbus, Ohio

"the lasting answer to MOISTURE PENETRATION!"

STOPALL

containing —

General Electric Silicones

CONCRETE

TYPE -C- applied to poured concrete construction, basement floors, floors of farm buildings, poultry houses and similar examples . . . floor slabs in modern basement-less type homes . . . establishes a lasting moisture repellent barrier to capillary action. Insures dryness and warmth and a sealed surface for paint or floor covering. Stops dusting, efflorescence, fungus. Creates healthy living conditions and eliminates costly repairs.

CONCRETE PRODUCTS

TYPE -CP- gives lasting protection from moisture penetration. Eliminates damp walls and discolored decoration. Halts the deterioration of exposed walls and mortar joints. Stops white efflorescence stains and preserves brickwork. Establishes a moisture barrier and sealed surface for enduring oil paint. Insures economy by enduring protection. Use inside or outside—above or below grade. Transparent.

Stopall Waterproofing Mfrs., Inc.
306 Commerce Bldg. — Kalamazoo, Mich.

several sizes to suit flow characteristics.

Two styles are being manufactured, one of which incorporates a hook head having a detachable jaw adapter piece making it adaptable to both closed and split side cars.

The second type is a wedge or dovetail head for use on cars equipped with female mounting-brackets. The wedge head type vibrator is also made in smaller sizes, 2- and 2½-in. piston diameter for other uses where a permanent installation is not feasible. This unit makes for easy attachment to concrete forms, hoppers, screens, chutes, etc.

Air consumption varies with the size and speed of the vibrators. Consumption averages approximately 80 cu. ft. per minute for the car vibrators of 3- and 4-in. piston diameter, and approximately 10 cu. ft. per minute for the smaller vibrators of 2- and 2½-in. piston diameter, at a maintained air pressures of 80 lbs. per sq. in.

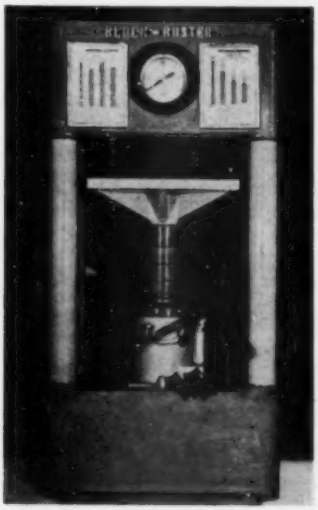
Speeds range from 1500 blows per minute for the large vibrators to 4500 blows per minute for the 2-in. Manufactured by the New Haven Vibrator Company, 160 Chestnut St., New Haven, Conn.

● Block Testing Machine

A device for controlling the quality of concrete products, especially as concerns compressive strength, has been developed by the W. E. Dunn Mfg. Company, 554 W. 24th Street, Holland, Mich. With this machine, the "Block Buster," it is possible, the maker states, to maintain quality at a constant level by checking each batch.

With a capacity for handling blocks up to 12 by 16 in. and other units up to 12 in. high, the device is said to have flexibility to meet the requirements of nearly any products plant. Its maximum opening is 13¾ in.

A large dial registers the compressive strength in tons. The dial reading may be converted into pound per square inch by consulting the charts at either side.



3000 READY-MIXED PLANTS ASKED FOR IT

a lighter, faster truck mixer... hundreds of dollars lower priced

FLUID DRIVE
(if you want it)

JAEGER "PAYLOADER"

2-3-4½-5½ YD. SIZES

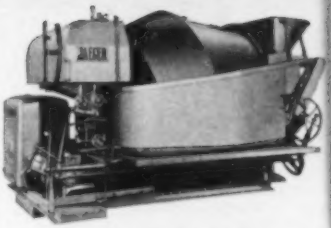
600 to 1600 lbs. weight reduction, meets strict load limitations: Yet sturdier, more rugged in frame and vital parts than ever before.

9 to 13 inches shorter, for better truck mounting: Less cab-to-axle requirement for short wheelbase trucks, correct load centering on all models for long truck and tire life.

Faster in operation — more trips, payloads per day: 10 seconds per yard to end-load dry materials with new hopper and high drum "charging" speed. Top-load wet material in one shot thru quick opening "toggle lock" door.

One wheel turn fully retracts hopper for discharge. High drum "discharge" speed thru Jaeger 2-speed transmission, plus low angle discharge cone and continuous blades, discharges 4" slump concrete at 20-25 seconds per yd., 1" slump in 60 seconds.

Pressure-jetted water distribution and 2-speed "Dual Mixing" with "Throw-Back Blades," insure higher strength concrete: The reason more concrete is sold by Jaeger Truck Mixers than by any other method.



50% LOWER MAINTENANCE COST . . . MORE HOURS ON THE ROAD

New "Spider" drum drive: Saves weight, insures an always self-aligning drum.

Unit power and transmission: A major improvement. Permanent gear alignment.

Instant opening, self-aligning hopper, long-life seal: Eliminates all end-loader headaches. One wheel-turn retracts hopper 9" for discharge. Self-centering drive pins hold it in positive alignment on roughest ground. Seal self-lubricated from 5 lb. grease reservoir. Seal replaceable in 30 minutes *without removing hopper.*

Ask your Jaeger distributor to show you these and many other Jaeger-engineered improvements—or send for complete Catalog TMH-10

THE JAEGER MACHINE COMPANY, Columbus 16, Ohio

AIR COMPRESSORS • PUMPS • MIXERS • HOISTS • TOWERS
AGGREGATE SPREADERS • BITUMINOUS PAVERS • CONCRETE SPREADERS, FINISHERS

DUST-FREE
TRUCK BATCHING

• A Sly Dust Filter will save you the dollars now lost in cement dust and greatly improve working conditions — assures clean truck mixers, clean yard and plant. Pleases the neighbors. Simple, inexpensive, easy to install, economical to operate — a paying investment. Send for Folder 84-H and quotation.

THE W. W. SLY MANUFACTURING CO.
4745 TRAIN AVENUE • CLEVELAND 2, OHIO

● Waterproofing Solution

Silicones developed by scientists are now being used in a new waterproofing solution called "Stopall" for treating concrete and concrete masonry units. The solution is made by Stopall Waterproofing Mfrs., Inc., Kalamazoo, Mich.

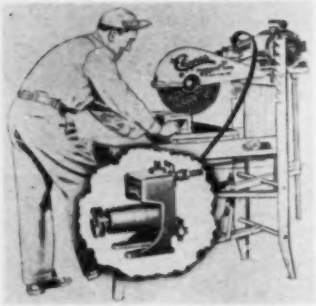
The makers state that blocks treated with the solution withstood five days of severe water sprays and heat cycles which were claimed to be the equivalent of from 12 to 15 years of normal weathering. Twelve days after these tests, the blocks were still completely dry.

Stopall is also used for keeping water out of porous stucco and sandlime brick. From 100 to 150 sq. ft. of wall can be covered with one gallon.

● Factory-Sealed Pump

A new "factory-sealed" water pump developed by the Clipper Mfg. Company, 2800 Warwick Trafficway, Kansas City 8, Mo., for its masonry saws eliminates the need for disconnecting the pump when cutting dry. To switch from wet to dry cutting, the operator merely turns the petcock on the outlet.

A Clipper feature is its water application system, by means of which all portions of the blade and cut are bathed to insure smooth cool cutting and longer blade life. The new 1950 Model HD Clipper is the only one to feature the factory-sealed pump and the water application system. It is said to handle all ranges of masonry materials from 12-in. concrete block to 1-in. quarry tile.



During the 13 years of its history the Clipper company has incorporated the following features in its masonry saws: the pressure equalizer spring for longer blade life; the new "Save-a-Blade" dial for instant tension settings for material hardness; selective notches for head height adjustment; "Adjust-a-Cut" control for finger-tip head angle setting; and "One-Spot Operation" for operator adjustments and cutting.

● Interlocking Units

Furiblox Associate. of Maryland, 3100 Childs Street, Baltimore 26, Maryland, has announced a special concrete block system by means of which, it is claimed, units will be self-aligning, self-spacing, self-bearing, self-lathed, self-faced, self-furred, and self-interlocking. Furiblox molds are designed to produce uniform strength at low cost.

The nature of the design eliminates the need for furring, usually formed by a wood strip and lathing, and produces a unit said to afford insulating properties. Plaster, paint or wall board finish may be applied directly to the block wall. Since the units are self-bearing, they obviate stress and strain on mortar joints and thus make a stronger, perfectly plumb and level wall. Joists can be set immediately after the blocks are laid, the manufacturer claims, without danger of slipping or creeping.

A special feature cited is that the unit is universal as to use, as it may be laid any way it is picked up; it is not necessary to match or find the "right" side or end. Furiblox are made in standard actual measurement sizes: 3¾- by 8- by 16-in., 7¾- by 8- by 16-in., and 11¾- by 8- by 16-in. Size 9¾- by 8- by 16-in. is also available. The manufacturer declares that inexperienced persons can use these units successfully.

Trade Notes

Coast Equipment Company, San Francisco construction, industrial and mining machinery distributor, has been appointed northern California sales and service representative for the C. S. Johnson Company, Champaign, Ill.

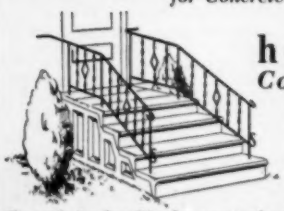
The Johnson line includes complete portable and stationary central-mix and transit-mix plants, concrete buckets, wheelbarrow scales, and all components necessary for efficient concrete batching and cement handling.

Johnson plants have poured over 100,000,000 cu. yds. of concrete, including large installations at Grand Coulee, Garrison, Hungry Horse, Bonneville, Hoover, Davis and Shasta dams.

F. W. Flowers, president of the General Engines Company, Inc., Gloucester, N. J., announces that the firm is now licensing manufacturing distributors of its precast fireplaces.

The Blaw-Knox Company has announced the appointment of Louis J. Sarosdy as manager of its new West Coast district office at San Francisco and Lester M. Horton as assistant. The new

An easy climb to EXTRA PROFITS
for Concrete Producers licensed to make



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MORE THAN 60 PLANTS OPERATING IN 25 STATES

Homeward all metal forms are precision built to produce a product that requires no hand finishing.

The exclusive franchise for your territory may still be open. If you wish to have one of our field representatives contact you, write

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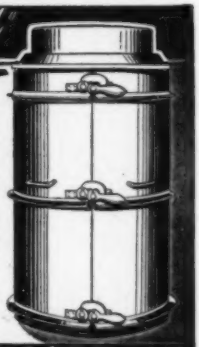
THE "Quinn Standard"
FOR CONCRETE PIPE



The Quinn Standard is known as the best the world over, wherever concrete pipe is produced and used. Backed by over 35 years' service in the hands of hundreds of Quinn-educated contractors, municipal departments and pipe manufacturers who know from experience that Quinn pipe forms and Quinn mixing formulas combine to produce the finest concrete pipe at lowest cost.

QUINN HEAVY DUTY PIPE FORMS

For making pipe by hand methods by either the wet or semi-dry processes. Built to give more years of service—sizes for pipe from 10" up to 120" and larger—tongue and groove or bell end pipe at lowest cost.

WRITE TODAY. Complete information, prices, and estimates sent on request.
Also manufacturers QUINN CONCRETE PIPE MACHINES

QUINN WIRE & IRON WORKS 1627 12TH ST. BOONE, IA

L. J. Sarosdy

L. M. Horton

headquarters are located in the Monadnock Building, 681 Market Street.

Mr. Sarosdy has been associated with Blaw-Knox for many years, having served as chief engineer of the construction equipment department and pioneered in designing steel forms for concrete construction.

Mr. Horton joins Blaw-Knox after long experience in serving the Western construction industries. He is a specialist in ready-mix concrete plants.

The Hyster Company of Portland, Ore., and Peoria and Danville, Ill., has taken over the manufacture and sale of "Turret Trucks", formerly produced by the Salsbury Corporation of Los Angeles, according to an announcement from Ernest G. Swigert, president.

The acquisition of the five Salsbury horizontal materials-handling trucks—"Pallet Truck", "Tug", "Platform Truck", "Cargo Truck", and "Auto-Loader"—rounds out the previous Hyster industrial truck line consisting of four fork lift-trucks ranging in capacity from 2,000 to 15,000 lbs.; a 10,000-lb. mobile crane; and two "Straddle Trucks" of 18,000 and 30,000-lb. capacity.

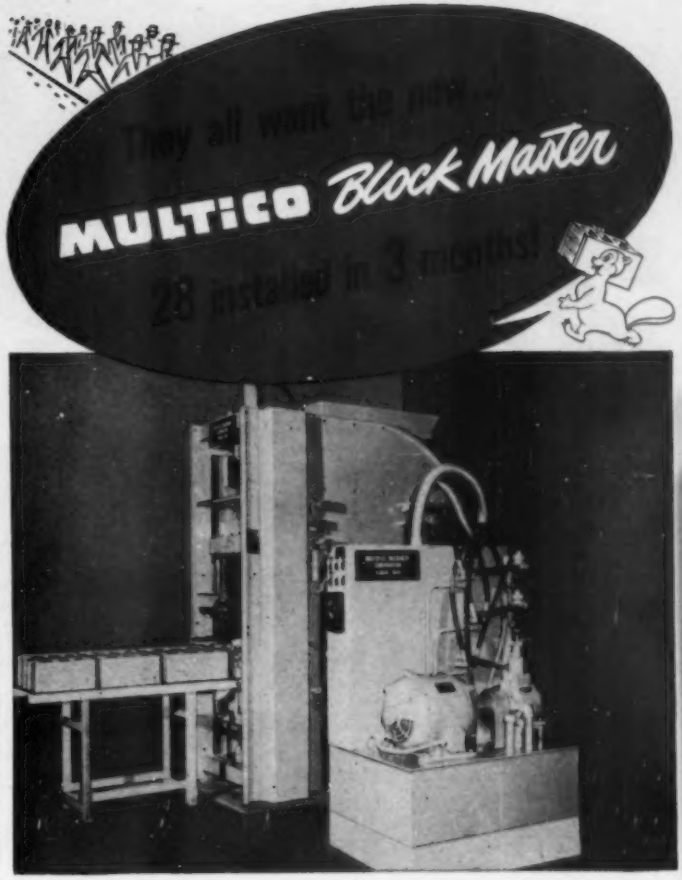
Now manufactured at Hyster's Danville, Ill., plant, the new line will be known as HYSTER Salsbury Turret Trucks and will be sold and serviced by the company's 168 distributors located in principal cities all over the world.

Designed for horizontal movement of materials rather than for tiering or stacking, the five Turret Trucks will handle almost any type of load up to a capacity of 4,000 lbs.

At Portland, Ore., the million-dollar new plant facilities of Mixermobile Manfacturers, makers of equipment for the concrete industry, were recently completed and put into service.

Included in new set-up are a welding and machine tool department, an automatic assembly line, an automatic paint spray department, and a metal cutting and press shop. The office building houses executive, designing, and sales offices; a complete parts department; a movie theatre; restaurant facilities; a photographic laboratory; a printing shop; and a technical department.

Furiblox Associate of Maryland, 3100 Childs Street, Baltimore, Md., announces that exclusive-territory franchises are ready for distribution for the manufacture and sale of its Furiblox molds.



Hydraulically Powered • Fully Automatic
Labor Costs Slashed to Less Than 1c per Block

EXCLUSIVE FEATURES

Separate Power Pak Control Cabinet

Pressure Vibration Plus Tamping

Handles all Aggregates

Makes all Sizes and Shapes of Block

Yes, the trend is to Multico—28 new Block Masters have been installed in the past 3 months. 28 more plants can now step up production, fill orders faster and easier with a higher quality block at lower labor costs. The *MULTICO BLOCK MASTER* is completely automatic—just set the controls and *BLOCK MASTER* takes the aggregate, vibrates on pressure, then automatically tamps block to size.all in one operation—an exclusive *MULTICO* feature. The *BLOCK MASTER* is a standard production machine. The separate power pak can serve additional machines—another saving. The *BLOCK MASTER* uses plain steel pallets, enabling you to produce any size or type of block desired. Let a Multico Field Engineer assist you in layout and planning of your plant. This is a free Multico service backed by 45 years of know how and experience. Learn first hand why 28 new Multico equipped plants have been started in just 3 months.

Write for Free Catalog or Location of Nearest Machine in Operation.

MULTIPLEX MACHINERY CORP. ELMORE OHIO

MANUFACTURERS OF BLOCK MACHINES • MIXERS • SKIP HOISTS • STRIPPERS • ELEVATORS

LOW COST CAR SHAKER

LET *The* NATIONAL CAR SHAKER

END YOUR UNLOADING PROBLEMS

Send today for illustrated literature containing details on installation and operation.

UNLOAD CARS QUICKLY

The National Car Shaker is designed to quickly unload any bulk material from hopper cars. Where material is unloaded into a pit, or from a trestle, cars can be unloaded in as little as four minutes. Where cars are unloaded on the flat, the time required depends only on how fast the material can be moved away.

NATIONAL CAR SHAKER is inexpensive to buy.

Expensive, heavy equipment to handle the shaker is unnecessary. It can be handled by a one ton chain hoist with a simple jib crane or light overhead monorail.

NATIONAL CAR SHAKER SAVES YOU MONEY

Many man hours now spent in unloading cars can be saved. Under normal conditions no one is needed inside the car and only one man is required to set the shaker.

NATIONAL CAR SHAKER speeds up your entire plant operation by eliminating the bottleneck at your car unloading point.

NATIONAL CONVEYOR AND SUPPLY CO.

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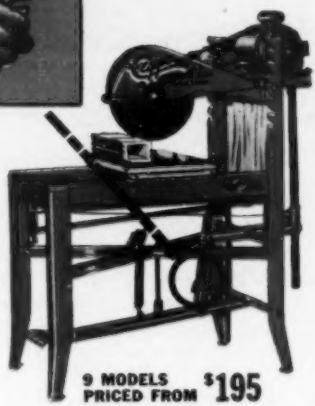
Clipper LEADS AGAIN WITH A NEW INVENTION THAT CUTS BLADE COSTS

DIAL-A-CUT and SAVE-A-BLADE

SAVE-A-BLADE DIAL *Properly Cushions* BLADE PRESSURE for LONGEST BLADE LIFE



9 MODELS PRICED FROM $195

FREE TRIAL

Don't wonder about the **greater profits** you'll make with the NEW Clipper SAVE-A-BLADE Dial. A FREE TRIAL will convince you! Only thru Clipper's outstanding policy of FREE TRIAL are you guaranteed . . . ACTUAL TESTING ON THE JOB . . . FULL SATISFACTION . . . AT NO OBLIGATION!

. . . by the Originators of Masonry Saws

● Just turn the "SAVE-A-BLADE" Dial to the hardness of the material you're cutting, and the Clipper Pressure Equalizer Spring *automatically* sets to the tension that guarantees faster cutting and longest blade life—Whether the material is HARD or SOFT . . . Whether using Diamond or Abrasive Blades . . . Cutting Wet or Dry with the "DUSTLESS" Model HD.

Another addition to those already famous Clipper features . . . "SELECT-A-NOTCH"—"ADJUST-A-CUT"—"WET-or-DRY" Pump—and—"ONE-SPOT" Operation.

GUARDS YOUR VALUABLE DIAMOND BLADES

The "DIAMOND" setting on your SAVE-A-BLADE Dial automatically cushions the blade against shock by relieving rim of excess pressure or binding.

ONLY Clipper GIVES YOU ALL THESE EXCLUSIVE FEATURES!

✓ **Automatic Blade Pressure** (PATENTED)

● Makes your blades last longer... Because Equalizer Spring automatically cushions blade pressure whether cutting HARD or SOFT materials. Outstanding for blade economy.

✓ **Select-A-Notch** (PATENTED)

● One man easily adjusts Cutting Head to desired height . . . Whether cutting 12" or 1" material. Operator's hands merely guide. All weight is supported by rear Connecting Bar.

✓ **Adjust-A-Cut Control** (PATENTED)

● Merely pull the knob — and the Cutting Head is free for finger-tip setting at any desired angle. Release the Knob — and Head is locked in the desired position.

✓ **"Wet or Dry" Pump** (PATENTED)

● No need to remove belt when cutting dry. No maintenance...Factory Sealed...An exclusive Clipper development. Patented Water Application Unit controls water flow.

✓ **One-Spot Operation** (PATENTED)

● From ONE SPOT at the front of his Clipper Saw the Operator performs every cutting operation and makes every saw adjustment. Never leaves his operating position.

Serving the World as the World's Largest Manufacturer of Masonry Saws

Clipper
NATION-WIDE DIRECT FACTORY SERVICE
MANUFACTURING CO.
KANSAS CITY 8, MISSOURI
Cable Address: CLIPPER K. C. Mo.
PHILADELPHIA • ST. LOUIS • CLEVELAND • AUSTIN, TEX.
SAN FRANCISCO • CHICAGO • NEW YORK • PITTSBURGH

DIRECT FROM FACTORY TO USER

CUT WET or CUT DRY
There's a Clipper Blade for Every Job!

MAIL THE COUPON NOW!

CLIPPER MANUFACTURING COMPANY
2801 N. WARWICK • KANSAS CITY 8, MISSOURI

Send TODAY information on the FREE TRIAL offer and complete literature and prices on the 1950 Clipper Masonry Saws.

NAME_____
COMPANY_____
STREET_____
CITY_____ ZONE_____
STATE_____

"Assembly line" production with
LEHIGH EARLY STRENGTH CEMENT

Powell Brothers' yard where precast concrete units were poured.

Precast units were delivered by barge to site of job, 10 miles away.

Fort Lauderdale's new Bahia-Mar Yacht Basin had to be ready for business before the 1950 season opened. This called for fast work all along the line . . . particularly in production of the precast concrete units, *which represented 95% of the concrete work.*

Piles, bulkhead slabs and pier slabs were precast in Powell Brothers' yard with "assembly line" precision. With Lehigh Early Strength Cement, the units reached service strength in one-fourth the usual time, thus adding speed, flexibility and economy.

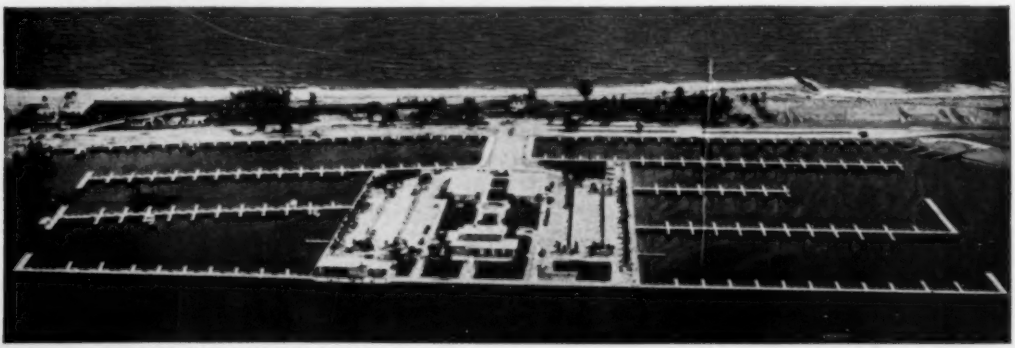
This permitted scheduling production at the yard only 7 days in advance of placing the units at the job site. Changes in pile lengths could be made without retarding job progress. Large stocks were unnecessary . . . rehandling of units was reduced to a minimum.

Whether you make special or standard units, Lehigh Early Strength Cement will help save time and cut costs. Our Service Department will be glad to assist you with your specific problems.

LEHIGH PORTLAND CEMENT COMPANY
ALLENTOWN, PA. • CHICAGO, ILL. • SPOKANE, WASH.

LEHIGH CEMENTS

LEHIGH PORTLAND CEMENT • LEHIGH AIR-ENTRAINING CEMENT
LEHIGH EARLY STRENGTH CEMENT • LEHIGH MORTAR CEMENT



Bahia-Mar Yacht Basin, with 4500 linear feet of precast bulkhead, provides berth and appurtenances for approximately 500 craft.

OWNERS: Bahia-Mar Corporation. **GENERAL CONTRACTORS:** Universal Construction Co., Inc., Fort Lauderdale, Fla. **ENGINEERS:** J. H. Philpott and F. V. Ackerman, Fort Lauderdale, Fla. **ARCHITECTS:** Grunkemeyer & Sullivan Associates, Cincinnati, Ohio. **CONTRACTORS FOR CONCRETE WORK:** Powell Brothers, Inc., Fort Lauderdale, Fla.

Don't Install any Mixer until you have investigated the new

YODER Continuous Mixer

with vibrating, non-clogging, constant volume positive feed and other revolutionary new features

These features, in brief, are as follows:

1. ***Positive Feed:*** Unique new arrangement of mixer blades at two different angles insures non-clogging, positive feed and full head of concrete above largest block machines at all times.

2. ***Constant Volume:*** Vibrating Feeder Belt reduces all aggregates, *regardless of moisture contents*, to constant volume. Result: Feeding by volume made as accurate as feeding by weight — yet without adding anything to the first cost or operating cost.

3. ***Lower Investment:*** This continuous mixer costs much less than batch mixers of equal capacity—yet *it eliminates all the expensive equipment* between storage bins and block machine — weighing batchers with conveying system, motors, wiring and control.

4. ***Accurate Proportioning*** by means of one or two aggregate gates. Once set for any desired proportions, no further attention is needed.

5. ***Thorough Mixing:*** About 2000 agitations of the mix in passing through the barrel — ten times more than given in five minutes by the average batch mixer.

6. ***Low Maintenance:*** Repair and replacement cost cut in half or better. The only parts requiring occasional replacement are the mixing blades.

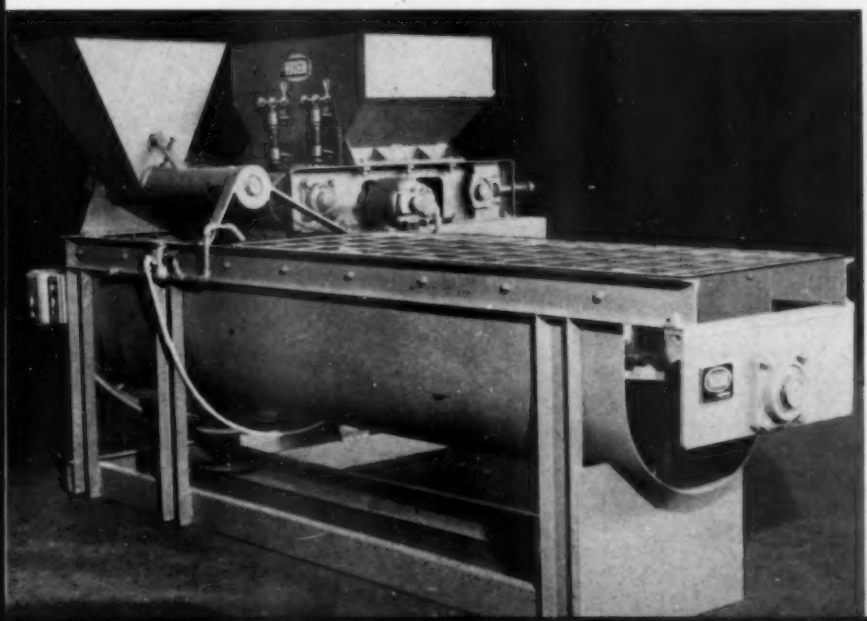
7. ***Guarantee:*** The Yoder Company for 40 years have been leaders in the building of high-production machinery. They enjoy a world-wide reputation for advanced engineering and fair dealings. With ample resources, they guarantee this machine to do everything they claim for it. They will back it to the limit!

Send for illustrated pamphlet explaining the important and unique features of this machine. If you now operate one or more block machines requiring from 5 to 20 cu. yds. per hour, sooner or later you will come to the conclusion that without this machine you cannot obtain the highest quality at the lowest cost.

So why not investigate NOW?

THE YODER COMPANY

5500 Walworth Ave. **Cleveland 2, Ohio**



The Yoder Co.
5500 Walworth Ave.
Cleveland 2, Ohio

Please send full particulars about the new Yoder Continuous Mixer with positive, non-clogging feed and vibrating constant volume densifier. Address as follows:

.....

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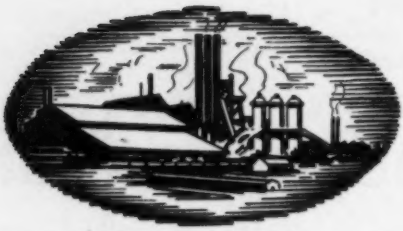


1900 ★ THE MIRACLE OF AMERICA ★ 1950

Freedom and Progress

It's no stretch of the imagination, rather, robust realism to call our past half century a Miracle—U. S. A.

America has set an amazing record of progress in 50 years—but a moment in the history of civilization. A record unequalled by any other political or economic system.

Merely by broad brush strokes, we can all visualize this miracle. Remember the crystal set, the hand-cranked car, the biplane? A far cry from our FM radio, television, hydro-matic drive and supersonic planes.

And here's another phase of the miracle that went hand-in-hand with these and the myriad of intertwined technological advances—ranging from the radio telephone and Bakelite to the X-ray tube and teletype . . . and to atomic energy and its untold potentialities.

- ★ Since 1900 we have increased our supply of machine power 4½ times.
- ★ Since 1900 we have more than doubled the output each of us produces for every hour we work.
- ★ Since 1900 we have increased our annual income from less than $2400 per household to about $4000 (in dollars of the same purchasing power), yet . . .
- ★ Since 1900 we have cut 18 hours from our average work week—equivalent to two present average workdays.

How did we do it? The basic cause for this composite miracle has been the release of human energy through FREEDOM, COMPETITION and OPPORTUNITY. And one of the most important results is the fact that more people are able to enjoy the products of this free energy than in any other system the world has ever known.

THIS IS THE MIRACLE OF AMERICA . . . it's only beginning to unfold.

A PUBLIC SERVICE PROJECT ★ THE ADVERTISING COUNCIL ★

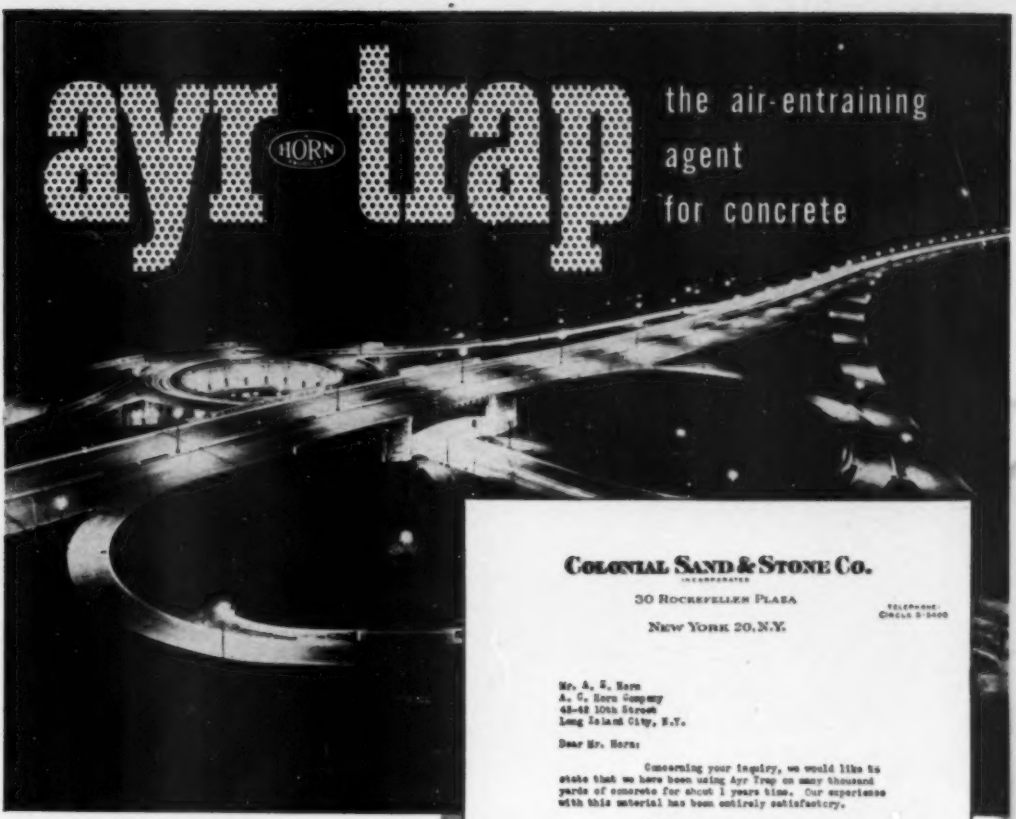
Published in the public interest by:

PIT AND QUARRY

ayr-trap

HORN

the air-entraining agent for concrete



COLONIAL SAND & STONE CO.
INCORPORATED

30 ROCKEFELLER PLAZA
NEW YORK 20, N.Y.

TELEPHONE: CIRCLE 5-3400

Mr. A. C. Horn
A. C. Horn Company
43-42 10th Street
Long Island City, N.Y.

Dear Mr. Horn:

Concerning your inquiry, we would like to state that we have been using Ayr Trap on many thousand yards of concrete for about 1 years time. Our experience with this material has been entirely satisfactory.

We have found:

1. Concrete with this mix does not suffer any reduction in strength in the richer mixes and in the leaner mixes show an increase in strength.

2. Same is not sensitive to variations in the type and amount of sand incorporated in the mixes, therefore, we are not called upon to change the amount we add everytime a new sand or a different mix is used.

3. No elaborate equipment is necessary for dispensing same. Ordinary pint measure is used. Variations on the recommended quantities does not seriously affect the results.

4. Adding this material to the mixes simplifies our plant operations in that we do not have to tie up as many storage hoppers as would be required with the interground cement. Errors that would result with the variations of cement as required are reduced.

Very truly yours
COLONIAL SAND & STONE CO., INC.
Frank L. Kelly
Vice President

Indispensable for Heavy Concrete Work

Ayr-Trap can be added at batching plants or on the job. It makes concrete more durable, increases its plasticity and minimizes segregation and bleeding. Ayr-Trap improves scaling resistance, chloride salt resistance and protects concrete against its most common failures. Ayr-Trap permits a reduction in the water cement ratio. Used in liquid form as follows: 3 liquid ozs. per cubic yard of 5 or 6 bag mix—1 pint per 5 cubic yds. 6 bag mix.

A. C. HORN COMPANY, INC.
Manufacturers of materials for building maintenance and construction—established in 1897
10th Street & 44th Avenue, Long Island City 1, N. Y.
Los Angeles • San Francisco • Houston • Chicago • Toronto
SUBSIDIARY OF SUN CHEMICAL CORPORATION

CM

GENTLEMEN:
Please send complete data on AYR-TRAP.

NAME_____ TITLE_____
COMPANY_____
ADDRESS_____
CITY_____ STATE_____

KOEHRING 2½-yard 1005 has plenty of power, stamina and weight-stability to hold solidly when digging into the toughest rock banks. It's *specially-engineered* for heaviest 2½-yard service.

Every operating assembly, from the 1005's cast-alloy crawler shoes to boom point, is extra-heavy-duty to meet the typical strains of 2½-yard digging. Crawler frames and axles are separate units from the carbody . . . provide "give" in the excavator base. Crawlers are easily moved in for shipping clearance. Positive traction-brake steering provides exceptional maneuverability. Center pivot bearings protect vertical traction shaft from horizontal stresses . . . husky hook rollers resist vertical stresses. Compact upper machinery, on one-piece turntable, is simple, accessible.

Big 37", double-band swing clutches are self-equalizing. Clutch housings constantly rotate, dissipate heat, give smooth, cool operation. Entire machine is 100% mechanical . . . no complicated hydraulic or air systems requiring service specialists. Adjustments are easily made by operator.

Operators also like the way the 1005's big, 48" power clutch retains "feel" of load . . . with only 1/10th the normal lever pull. Another Koehring feature, instantaneous dipper trip, works *every time* . . . saves spillage . . . speeds loading for top yardage output.

This heavy-duty Koehring 1005 is diesel powered, can also be furnished with electric motor. Quickly converts from shovel to dragline, clamshell or lift crane. Safely lifts up to 79½ tons . . . boom sections up to 120', plus 30' jib. Other Koehring excavator sizes: ½-yd. 205, ¾-yd. 304, 1½-yd. 605.

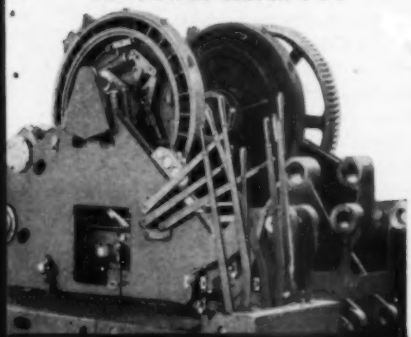
YOUR KOEHRING DISTRIBUTOR HAS ALL THE FACTS . . . CHECK THE 2½ YD. 1005 TODAY

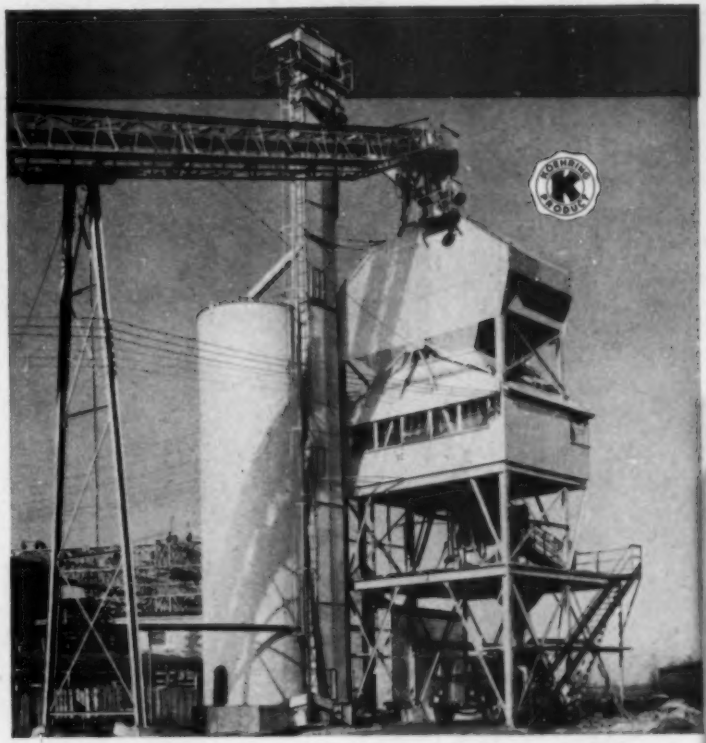
KOEHRING COMPANY
MILWAUKEE 10, WIS.

SUBSIDIARIES: JOHNSON • PARSONS • KWIK-MIX

FOR POWER STRENGTH and WEIGHT

- EVERY ASSEMBLY HEAVY, POWERFUL . . . *ENGINEERED SPECIALLY* FOR 2½-YARD EXCAVATOR SERVICE
- PLENTY OF WORKING WEIGHT BEHIND POSITIVE CHAIN CROWD FOR *DIGGING-IN*
- RIGID BOX-DESIGN BOOM, MASSIVE SHOCK ABSORBER MOUNTING, DOUBLE DIPPER STICKS, TORSION-RESISTANT SHIPPER SHAFT, ALL ABSORB STRESSES OF FAST ROCK HANDLING WITH THE 1005
- SAFELY LIFTS UP TO 79½ TONS Boom sections are available up to 120' . . . plus 30' jib
- LIGHT LEVER PULL SETS BIG 48" POWER CLUTCH . . .



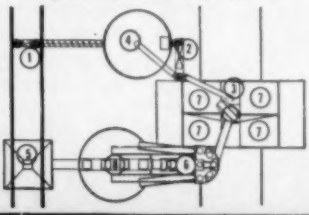


New JOHNSON Ready-Mix Plant Complete in ONE PACKAGE

Here's How it Works

Bulk cement, received by rail or truck, conveyed by screw conveyor from cement receiving hopper (1), to bucket elevator (2), is discharged into central cement storage compartment of bin (3), or auxiliary cement storage silo (4).

Aggregates, received in hopper bottom cars or trucks, conveyed by belt-feeder from aggregate receiving hopper (5), to aggregate bucket elevator (6), are discharged into aggregate compartments (7), of 100-yard bin or aggregate storage silo, (8), or two-in-line silos. Johnson Concentric Batcher and Johnson Water Weigh Batcher, both on batcher floor below bin, discharge into the mixer or through the other leg of 2-way batcher-discharge directly into a truck-mixer.



High Production . . . New Low Investment

Because new conveyor and elevator system provides for ground storage of both cement and aggregates, you need less overhead storage capacity. Result: Lower investment cost that reduces your cost per yard of concrete.

50% Lower Erection Cost

Erection cost of new Johnson Ready-Mix Plant is reduced by approximately 50%. Welded units can be erected in half time it takes to put up "bolted" plant. Means important saving.

Quickly, Easily Moved

Prefitted units disassemble fast. Bin sections and steel silos fit railroad cars and flatbed trucks. Ship anywhere—to bridge jobs, dam jobs, school and hospital jobs — wherever on-job mixing will pay you.

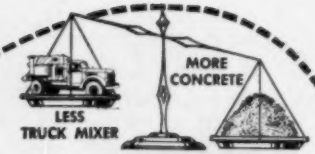
Overhead Storage Easily Increased

By adding a welded section to the elevators and the bin, overhead bins can be easily and economically increased from 100 yard to 150 yard storage capacity.

Contact Johnson today for New Concrete Plant Catalog.

JOHNSON COMPANY

Now – with these New LOAD LIMIT SMITH-MOBILES, You Can Haul BIGGER PAYLOADS



. . . without Exceeding Highway Weight Limits!

Your Smith-Mobile *LOAD LIMIT* Model can easily be converted to a Standard Smith-Mobile Truck Mixer or Agitator. A Standard Model can easily be converted to *LOAD LIMIT* Model.

Wouldn't you like to have your trucks haul more concrete and *less mixer* with a *lower capital investment*? You can do it with these new Smith-Mobile Load Limit Models. Deadweight is reduced to a minimum by eliminating parts and assemblies not necessary to mixer operation. This means you can haul full-rated truck mixer payloads and still meet highway load limitations. And you can do it without any compromise with quality, performance or sturdiness. Smith-Mobile is *the ONLY Load Limit truck mixer carrying the approved NRMCA rating plate*. Models are available in 2, 3, 4½ and 5½ yard sizes, with higher ratings for agitators. Get the complete story. Ask for Bulletin No. 247.

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THE T. L. SMITH COMPANY
2887 N. 32nd St. • Milwaukee 10, Wisconsin, U. S. A.

SMITH MOBILE

Over 50th Anniversary – A HALF CENTURY OF PROGRESS BUILDING BETTER MIXERS! 1900 1950

A 5767-1P

"WHEN WE started operations in 1947," writes Mr. Paul V. Gandy, President of Gandy Block & Supply Company of Melbourne, Florida, "our equipment consisted of mixer, belt conveyer, and a hand-operated block machine. To meet the demand of the area, we purchased additional equipment which upped daily production to 1700 blocks with a 5-man crew.

"THEN CAME the turning-point -- the day we investigated Appley-Yellen machinery. We were amazed to learn from Mishco what a high output we could achieve with a LOW investment cost. Our subsequent purchase of an automatic Hi-Speed block machine and proper accessory equipment produced a *daily output of 4000 blocks* with a 6-man crew (four on the block machine, mixer and skiphoist, and two in the yard for stacking and supplying pallets, etc.)."

THIS IS THE UNIT that did the job! Appley-Yellen Hi-Speed block machine, mixer and skiphoist. Will use *any* kind of aggregate; no special mixes necessary. With automatic or semi-automatic operation, individual timings of the 4 steps are completely changeable at will! All blocks of uniform density and true-sided. No exposed parts to wear from grit and dirt. In short, a super-adaptable, integrated unit designed and built to do just ONE THING WELL -- make concrete blocks (and brick) that you can sell at competitive prices, with satisfaction guaranteed!

MISHCO CORPORATION
615 S. W. 2nd AVENUE • MIAMI, FLORIDA
J. W. APPLEY & SON, INC. • ST. PETERSBURG 2, FLORIDA

LET US HELP YOU! If you are interested in modernizing YOUR plant and duplicating the success story of the Gandy Company, just write or wire us -- our consultant will gladly advise you without obligation.

Quality **CINDERS**

(ANTHRACITE)

CARLOAD SHIPMENTS

CLEANED, SCREENED, CRUSHED

SIZING: HALF INCH DOWN TO POWDER — READY MIXED FOR YOUR MIXER — LOW IN COMBUSTIBLE CONTENTS — FREE OF STAINING CAUSES.

STEADY DEPENDABLE SUPPLY SHIPPED ON SCHEDULE

WRITE US NOW — MENTION RAILROAD DELIVERY

H. HESSEY MILLER, CHESTER, PA.

Here is the BIG PROFIT machine

THE MARVEL JR. — DRAIN TILE MACHINE

Included on the Marvel Jr. are numerous Pats. Pend. features of our Marvel Automatic. Now, no expensive, heavy, clumsy, in-the-way stationary machine is required.

MARVEL JR. is fast. Mounted on casters. Tile are off-bearred directly onto the floor and machine pushed forward as necessary. Save steps! Speed production!

The Marvel Jr. with standard equipment makes 4-inch round drain tile. Attachments can be secured for making 3", 5", and 6" round drain tile and also 4" Hexagon shape drain tile.

We are also the largest manufacturer of SPECIALTY MOLDS for making lawn, garden, porch and other concrete ornamentals.

Write or wire

CONCRETE MACHINERY COMPANY

P. O. Box 2248 **Hickory, North Carolina**

SEPTIC TANKS? WHY NOT?

CARPENTER equipment is preferred by large precast tank manufacturers because they use

MINIMUM TIME AND LABOR in

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LASTLY AND NOT LEASTLY— ONE MAN can make delivery of tank when he uses a CARPENTER DELIVERY RIG.

Used Coast To Coast

CARPENTER MANUFACTURING COMPANY

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MANUFACTURE THIS BEAUTIFUL CONCRETE OUTDOOR FIREPLACE

Right In Your Own Backyard

$4.00 Worth of Sand & Cement produces this Attractive Fireplace

Sells on Sight from $60 to $80. Easy to start your own Profitable Business.

The General Fireplace Molds and Process are the most amazing and foolproof ever invented. Simple to operate, two men can produce five fireplaces a day.

BIG DEMAND!!

Sell all you produce to Department Stores, Homeowners, Parks, Nurseries and Picnic Groves. Fireplaces sell on sight. No experience necessary, we supply full operating instructions and equipment plus the know how that spells BIG PROFITS. This is an outstanding opportunity for men of vision and small capital to get into a busy rich paying field. Don't delay, be the only exclusive manufacturer in your own home town. Mail coupon at once for full details as to how you can reserve your territory.

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307 HUNTER ST. **GLOUCESTER CITY 10, N. J.**

Mr. Tor of Phila. writes: Sold 250 in first 4 months. Selling to Sears Roebuck, John Wanamaker and Gimbel Bros. in Phila. area.

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TRUCK MIXER

Hi- DISCHARGE · PRODUCTION · SPEED · PROFITS!

Lo- HEIGHT · COST · MAINTENANCE · TIME LOSS

REVOLUTIONARY TRUCK MIXER DESIGN

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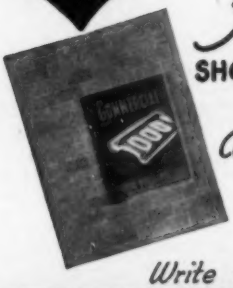
24 Page Catalogue
Every Block Maker
SHOULD HAVE ONE



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STEEL CORED PALLETS
Write for it – FREE

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OSWALT SERVICE
in your plant increases your profit by at least sixty dollars per day.

Every 100 days you operate your Besser Vibrapac you pay for OSWALT SERVICE in other ways, without having its benefits.

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FREE

BESSER K-3 AUTOMATIC BLOCK MACHINE, MOTORS, ATTACHMENTS, AUTOMATIC PALLET FEED, FRONT END CONVEYOR, AND 100 EXTRA PARTS: EVERYTHING FREE IF YOU BUY THE PALLETS.

We give away all makes of good used block machines FREE to anybody agreeing to buy the pallets.

CHASE CONCRETE MACHINERY CO.
15 Linwood Avenue Buffalo 2, New York

FOR SALE

One New, 3 Compartment, 6S yard Erie Bin with 3 Clamshell gates & Frame.
One New 45 Foot Eagle Elevator, swivel type chute, chain drive, 5 HP Motor.
One New Conveyor bin for use on Erie Bin.
None of the above have ever been used.
One Stearns Clipper Stripper Block Machine, Completely rebuilt.
One Stearns 18 Cubic Foot mixer completely rebuilt.
One Skip Loader, 5700 pallets, and 82 steel Block Racks.
One Pallet Oiler.
One 2 Ton Clark Tilt Lift Truck Completely rebuilt.
One Reed Chimney Block Machine with pallets. New in 1949.
One 6-S One Bag Jaeger Cement Mixer, run less than 100 Hrs.
One Barrett Lift Truck.

Masonry Products Co., Inc.
COLUMBIA CITY, INDIANA
Phone 493

FOR SALE
COMPLETE CONCRETE PIPE PLANT

1 Heavy Duty Quinn Concrete Pipe Machine for making Tongue and Groove Concrete Pipe from 12" through 60" Diameter, complete with Motors, Starters, Switches, etc., 28 cu. ft. Mixer complete, Standard Wall Jackets, Pallets, Cores, etc., from 12" through 48". Hydraulic Carts from 30" to 60" inclusive, wire roller and extra parts. This equipment used very little and in new condition.

Box W 7, c/o Pit & Quarry Publications
538 So. Clark St. Chicago 5, Ill.

FOR SALE

Stearns No. 7 Joltcrete with power carriage, 4'-8'-12" mold boxes and steel pallets, 40 steel racks.

Box No. B 9, c/o Pit & Quarry Publications
538 So. Clark Street Chicago 5, Illinois

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All shades and grades the highest quality.
Write for color cards, prices and samples

RICKETSON MINERAL COLOR WORKS
MILWAUKEE 2, WISCONSIN
Established 1885

NATIONALLY KNOWN MANUFACTURER WANTS SALES REPRESENTATION

We need an experienced sales representative in the Chicago, St. Louis, Birmingham and Newark, N. J. areas. Only men experienced in block machines and contractors equipment will be considered. Liberal commission. Feel free in answering this advertisement since you are not now and never have been employed by us. State age, experience and by whom previously employed in first letter.

Box No. B 8, c/o Pit & Quarry Publications
538 So. Clark Street Chicago 5, Illinois

WANTED

Experienced superintendent for large Southwest concrete products plant. Must be capable of handling large crew. Good future. State age, experience, and approximate starting salary required.

Box No. B 11, c/o Pit & Quarry Publications
538 So. Clark Street Chicago 5, Illinois

Priced to Sell

1 Stearns 15 — Excellent condition. Can see in operation. Must sell at once.

Standard Block & Supply Co.
Lansing, Michigan

PACKER-HEAD WINGS

McCracken Type — PROVED to last as long or longer — yet cost considerably less. Write for prices.

TEXAS FOUNDRIES
LUFKIN, TEXAS

COMPLETE STEARNS NO. 7 JOLTCRETE CINDER BLOCK PLANT; crusher, boiler, magnetic pulley, fork lift truck, powered tools, speed reducers, pulleys, belting, spare parts — all guaranteed to be in good condition by owner. No reasonable offer rejected. Will sell separately or as a whole. We are not dealers.

CUMMINGS & STACK, INC.
1911 Kenilworth Ave Washington 19, D. C.
UN. 9877 — OR. 6055

BIG SAVINGS ON USED CONCRETE BLOCK MACHINERY
We Buy & Sell

Concrete Mixers, Hoppers, Power Block Machinery—Leading Makes. Pressed Steel Pallets. Accessories. Big values offered. Write us your requirements.

GENERAL ENGINES CO., INC.
307 Hunter Street, Gloucester 8, New Jersey

CEMENT COLORS — PROMPT SHIPMENTS

Write for samples and prices of "LANSCO" CEMENT COLORS in bright shades of RED, YELLOW, GREEN, BLUE, BLACK, BROWN. Manufactured by

LANDERS-SEGAL COLOR CO.
76 Delevan Street, Brooklyn 31, N. Y.

FOR SALE

Wood pallets—2000 (approx.) 8" wide, 17½" long, 1⅝" thick; mortised and otherwise constructed so can't warp; oiled; good condition; 15c ea. Will exchange for Graveley or George modular pallets or other useful equipment.

CAMP DENNISON CONCRETE BLOCK CO.
Phone Milford 5818 CAMP DENNISON, OHIO

WANTED

An aggressive man capable of taking full charge of manufacturing in a high production, long established Block Plant in a large Great Lakes City. Must know his job. An opportunity for the right man to step in at a high management level of a going and prosperous business. The salary is open and will be determined on the needs, the knowledge and the ability of the individual.

Please give full details in your first letter. Replies will be kept completely confidential. Principals only.

Box No. B 10, c/o Pit and Quarry Publications
538 So. Clark Street .. Chicago 5, Illinois

WANTED

Good used 3 core 6" mold box with 2000 pallets for Stearns Model A Stripper Block Machine.

HAGEDORN BLOCK COMPANY
c/o Lee Hagedorn Masontown, W. Va.

FOR SALE

BLOCK MACHINE — PRACTICALLY NEW
Kelley Power Stripper
12"—8"—4" Mold Boxes
12"—8" Steel Pallets
Reciprocating Feeder
Will sacrifice far below cost.

FROST SAND & GRAVEL CORP.
New Rochelle, N. Y.

MINERAL COLORS
for
BRICK MORTAR STUCCO-PLASTER-CONCRETE

"Fine Because of Their Fineness"
Ask for samples and recommendations.
BLUE RIDGE TALC CO., INC.
HENRY, VIRGINIA

FOR SALE—TWO TRANSIT MIXERS

One Jaeger 2.5 yard horizontal mixer mounted on a 1941 DM-500 International Truck.
One Smith High Dump mixer mounted on a 1939 International truck Tandem Drive, three yard capacity, separate engine drive.
Both units in good operating condition.

V. H. FLANNERY BUILDING MATERIALS
574 No. 20th Street East St. Louis, Illinois

FOR SALE

2—2cy Jaeger high discharge Transit Mixers on Ford Trucks. Completely Overhauled

C. D. SMELSER CO. INC.
511 W. Colfax Ave., South Bend, Ind.

FOR SALE: One 4½ yd. Jaeger Hi-Dump Mixer mounted on semi-trailer. K8 International Tractor 1947. One 3 yd. Jaeger Hi-Dump Mixer mounted on GI 6x6 Studebaker. One Hough Pay-Loader, dual drive, 1 yd. bucket.

HUTSONVILLE CONCRETE CO.
HUTSONVILLE ILLINOIS

FOR SALE

USED STEARNS JOLTCRETE AND CLIPPER STRIPPER MACHINES with auxiliary equipment. Larger Stearns machines replaced these.

GUY D. MOODY
P.O. Box 852 Bristol, Virginia

AGGREGATE FOR SALE

BURNED RED SHALE FOR CONCRETE BLOCKS OR BRICK. LIGHTWEIGHT, FIREPROOF, PROCESSED READY FOR USE. SHIPPED FROM APPALACHIA, VA. OR LAKE CITY, TENNESSEE.

H. P. DAVID P.O. BOX 342
PHONE 3418 DAY OR NIGHT
LAKE CITY, TENNESSEE

NOW IS THE TIME! to equip . . . to sell the profitable lintel market

There's a

KENT LINTELATOR

including the New Super, for every plant, large or small.

Can also be adapted to make SILLS, CRIBBING and FENCE POSTS

Yes, there's considerable extra business to get and increased profit to be made in lintels if you produce them fast and economically on a Kent Lintelator.

More and more block makers are proving this as indicated by enthusiastic reports. Several have installed additional machines.

Lintelator not only enables manufacturers to reach a ready market but expands this market through inherent advantages.

Lintels can match block texture. Any aggregate can be used. They're installed by masons. There's no delay or extra expense for steel erectors. Builders really like them and buy them in unexpected volume.

This is your *big* opportunity and NOW is the time to act. Write today.

Get The NEW BULLETIN Just Off The Press

The **KENT MACHINE CO.** Cuyahoga Falls, Ohio

Manufacturers of CONCRETE PRODUCTS MACHINERY *Since 1925*

CONCRETE MANUFACTURER CLASSIFIED SECTION

FOR SALE

TO CLOSE ESTATE

COMPLETE ROOFING SLAB EQUIPMENT

CHANNEL AND FLAT SLABS

Complete sets of steel forms, mixer, vibrator, mono rail track, electric hoists, reinforcing bars and mesh.

Box No. B 6, c/o Pit & Quarry Publications
538 So. Clark St. Chicago 5, Ill.

UNBREAKABLE PALLET RINGS

Write for full information

TEXAS FOUNDRIES
LUFKIN, TEXAS

OLD-ESTABLISHED BLOCK MACHINERY CO.

• • FOR SALE • •

One of the Oldest Companies in the Concrete Block Industry

For 35 years this company has manufactured automatic tampers and vibrators. Its machines are fully automatic, requiring only an offbearer (no operator) and turn out 200 perfect blocks per hour. Selling prices are the lowest of any comparable machines because the mechanism is simple and well-engineered. The potential volume of business is very large, and national advertising has resulted in many inquiries. Machines are currently being shipped against a backlog of orders.

This company is a wholly-owned subsidiary of another company engaged in a different line of business. The parent company is not able to give the subsidiary the attention it deserves to fully exploit its great potentialities; and therefore has decided to offer it to some individual or organization who could give it the attention it requires and cash in on the profits it could make.

We are prepared to turn over all drawings, patterns, raw material, finished parts, complete machines ready for sale, backlog of orders, and good will. We will, if desired, manufacture the machines in our plant.

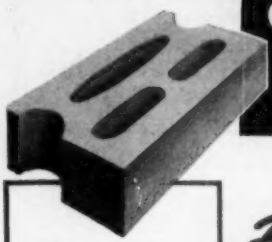
Inventory alone is valued (actual cost) at more than $50,000. This very desirable business may be acquired for less than inventory value.

Write: A. F. MICHE
504 HARRIS TRUST BUILDING
CHICAGO, ILLINOIS

Have a free Demonstration
at Your plant
Using Your aggregate

Our fleet of Demonstrator Trucks makes scheduled demonstration trips.

GEORGE
SERIES 400
CONCRETE
BLOCK
MACHINES



5 FEATURES of Redi-Furred Blocks

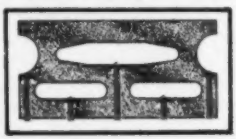
- Eliminates the need for furring and lathing.
- Insulates against heat and cold — 15.7% less heat loss.
- Prevents condensation.
- Lays faster and with a better bond.
- Simplifies electrical and plumbing installations by permitting wide interior channels.

make
Redi-Furred
and Conventional Blocks

We will gladly send one of our Demonstration Trucks to your plant, to prove the superiority of our series 400 Concrete Block Machines while operating under your conditions. You will see how the hydraulically operated PRESS-PAC head goes down into the mold box with 2400 pounds pressure while the mold box and cores are vibrating. Thus, the aggregate is firmly packed and dense throughout. Blocks of uniform strength with extremely water repellent walls result. You can watch one man turn out 7 to 10 blocks per minute.

CONDENSATION THWARTED

The red arrows give visual proof of how moisture and frost penetration is stopped by the staggered air spaces of Redi-Furred Blocks.



Write or wire for an appointment for one of our Demonstrator Trucks to visit your plant . . . also for descriptive literature and prices.

F. C. GEORGE MACHINE Company
100 S. WESTMORELAND DR., ORLANDO, FLA.

The ACE
An Entirely NEW - Completely DIFFERENT
CONCRETE DRAIN TILE MACHINE

EASY TO OPERATE
LOW MAINTENANCE COST
NO GEARS NO CAMS
NO CLUTCH

The ACE is the concrete drain tile machine you have been looking for. Developed after an extensive survey to determine what concrete products men wanted in a drain tile machine, the ACE features a Packer-type combination head and shoes cast in one piece to assure a perfect tile.

GE or Westinghouse 1200 RPM Ball-bearing motor and Stop and Go switch. Finest quality air cylinder, oversize, positive action, precision mounted, heavy-duty construction throughout. Just push the switch, apply the air control valve and the ACE is working for you making a product you'll be proud to sell.

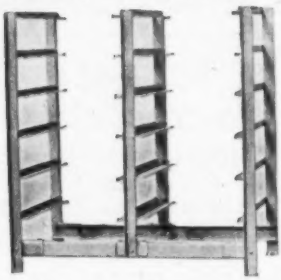
With 2,000 drain tile a day made on the ACE placed on your yard at less than 3½ cents each—now check with the sales price of Concrete Drain Tile in your territory. Then figure your profit—do this today.

WRITE, PHONE OR WIRE FOR DETAILED INFORMATION

DUGAS & COMPANY
962 MARIETTA STREET ATLANTA, GEORGIA

CHASE BLOCK RACKS, CARS, PALLETS

Corrosion-
Resistant
Hi-Strength
Alloy Steel



For Fork or Platform Lift Trucks

CHASE — THE LAST WORD IN
- DURABILITY
- ECONOMY
- EFFICIENCY

Sturdy construction
•
any style or capacity
•
Shipped knocked down
•
Rigid Field connections
•
assembled Easily

CHASE Foundry & Mfg. Co.
COLUMBUS 7, OHIO

LOWER OPERATING COSTS!

MODEL "C" HYDRAULIC PIPE MACHINE

because of

Long lasting, wear-resisting wearing parts . . .

Less down time . . steadier production . . higher profits . . you're assured of all these by the long lasting wearing parts in Dixon Model "C" Hydraulic Pipe Machines.

All parts are of wear-resisting alloys, precision machined and ground, and can be changed quickly and easily. COMPLETE STOCKS ARE CARRIED FOR IMMEDIATE SHIPMENT OF ANY PART.

Write today for the full story on the Model "C" Machine. It's a profit-maker that costs less to own . . less to operate.

HOUSTON CONCRETE MACHINERY CO.

6600 WASHINGTON AVENUE HOUSTON, TEXAS

Manufacturers of:

Dixon Pipe Machines
Pipe Bend Machines
Dixon Mixers

Septic Tank Forms
Dixon Conveyors
Off-Bearing Carts

Save 8 man-hours every day

with truck-man!"

And that's not hay! That's what block plant operators across the country tell us they save with this economical, rugged truck. One man's time . . .every day . . . the whole year 'round . . . *that* adds up!

You save up to $300.00 and more during the first month you put Truck-Man to work in your block or brick yard . . . and you continue to save at that rate during years of faithful, dependable Truck-Man service.

Truck-Man is a light, speedy, highly maneuverable truck that works a shift on little more than a gallon of gas . . . requires minimum maintenance . . . has simple controls any worker quickly learns to operate. The special 62" platform handles even 72 block racks . . . those extra big loads that mean more profit per trip between block machine and curing room. Various platform heights, widths and lengths available to suit your operation.

There's an extra dividend for you, too, in the gentle treatment your blocks get. Truck-Man's easy hydraulic lift and drop, soft *start* and *stop*, and rubber-cushioned ride spot your racks gently . . . no costly checking of green blocks to eat up profits.

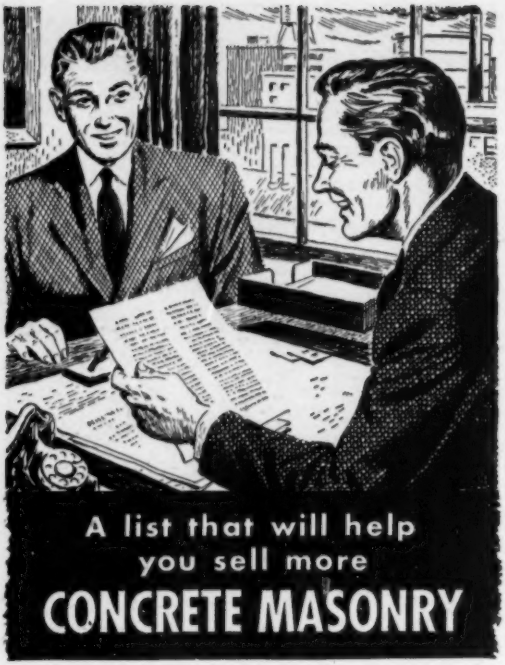
New 1950 catalog describes three low-cost Truck-Man models. You owe it to yourself to get the whole story on this money-maker. Coupon brings your copy, at no obligation. Mail it now. Sales and service in 95 centers across the nation!

truck-man Div. of The KNICKERBOCKER CO.
371 LIBERTY ST. • JACKSON, MICH.

NAME _____ TITLE _____

ADDRESS _____

CITY _____ ZONE _____ STATE _____



The choice of construction materials is greatly influenced by architects, engineers and builders. Those who design and build quality concrete masonry structures are valuable assets to your business.

Portland Cement Association advertising is helping you turn this relationship into more sales. Every month advertisements in leading farm and home magazines tell millions of readers to call their local concrete masonry manufacturer for the names of architects and builders experienced in concrete masonry design and construction.

Here's how you can capitalize on the above facts: Maintain a list of architects and builders in your area who have established a reputation for designing and building quality concrete masonry structures. Then when a prospect calls, use this handy reference to recommend a dependable architect or builder. Remember, such dependability is important because every good job sells others.

Using such a file of reliable architects and builders is one of three essential steps in developing more business. The others are: (2) making quality block that complies with ASTM and Federal specifications for moisture content, strength and water absorption and (3) keeping a list of quality concrete masonry structures in your community from which you can select examples to show prospects when they call.

PORTLAND CEMENT ASSOCIATION

33 W. Grand Avenue, Chicago 10, Illinois

A national organization to improve and extend the uses of portland cement and concrete . . . through scientific research and engineering field work

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*See also detailed information in 1949 Pit and Quarry HANDBOOK and Concrete Industries Yearbook

Another Leader

★ This is the 84th of a series of ads featuring leaders of the Concrete Products Industry who are stepping up block production with Vibrapacs.

Here's What Mr. George A. Meihaus Vice President of TEXCRETE CO. Says: —

Texcrete's new all concrete masonry office building at the Fort Worth plant.

"Our two Besser Vibrapacs, recently installed in our Dallas plant, were obtained under a Vibrapac Agreement. We found this would enable us to reduce our capital investment to a minimum, thereby adding to the amount of our available working capital.

"We also found that Besser Vibrapacs are the machines for us. It gives us maximum production with a minimum of upkeep cost, and our product is superior in every way."

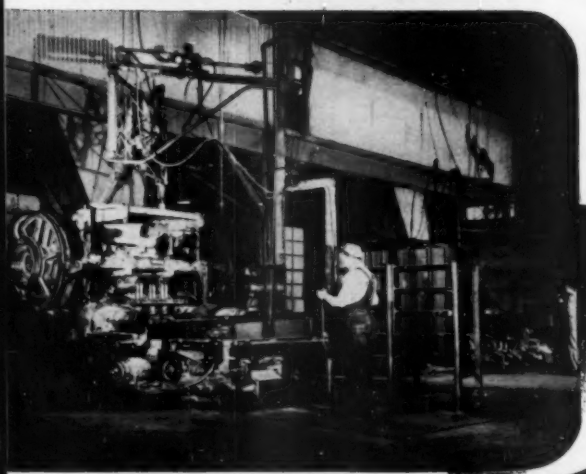
Texcrete first installed Vibrapacs in their Fort Worth plant and now have installed and are operating, in their Dallas, Texas plant, two of the latest front pallet feed Vibrapacs. They produce a large volume of high quality block and at the same time are showing substantial economies in operation and upkeep.

They are producing modular block in more than 40 sizes and shapes to meet demands in the Dallas-Fort Worth areas. The Dallas plant is designed for expansion to operate two more Vibrapacs.

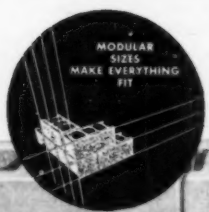
BESSER MANUFACTURING CO.

Complete Equipment for Concrete Products Plants

120 — 50TH STREET • ALPENA, MICH., U. S. A.



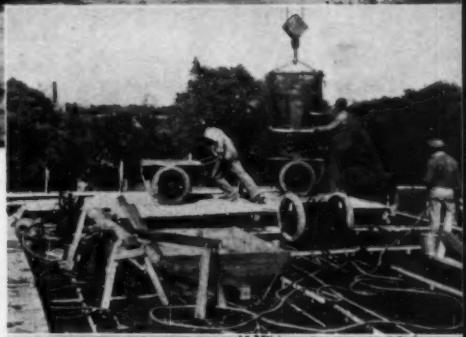
One of the fully automatic Besser Vibrapac machines at the Dallas plant. Produces three 8 x 8 x 16 units at a time on one Plain Pallet with front feeding of pallets.



BESSER

BATCH MIXERS · SKIP LOADERS · BLOCK & BRICK CUBERS · SUPER VIBRAPAC · AGLITE PLANTS · ACROW CENTERS · ROOF TILE MACHINE

University of Tennessee — Men's Dormitory, Knoxville, Tenn.; Archts.—Barber & McMurry; Gen'l. Contr.—V. L. Nicholson Co.; Pozzolith Ready-Mixed Concrete—Tennessee Concrete & Supply Co.; all of Knoxville, Tenn.



Quality PLUS Economy WITH POZZOLITH READY-MIXED CONCRETE

1. GOOD WORKABILITY WITH LOW SLUMP
2. MINIMIZED SEGREGATION
3. ASSURED STRENGTH
4. WATERTIGHTNESS
5. DURABILITY

These are the immediate and long-term benefits obtained in this project with Pozzolith, Cement Dispersion. Providing quality with economy, they explain why Pozzolith Ready-Mixed Concrete is going into more and more of America's finest structures.

Write for full information and Pozzolith booklet.

POZZOLITH AUTOMATIC DISPENSER

Operator delivers the correct amount of Pozzolith, in liquid form, required for a batch, by simply setting the control dial and opening the valve.

Over 400 leading ready-mix and many concrete products plants are now equipped with this device.

the MASTER BUILDERS Co

CLEVELAND 3, OHIO TORONTO, ONTARIO

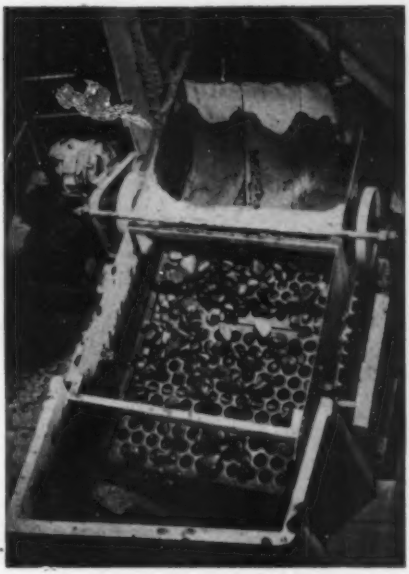
The screen that "can take it"

. . . *and always give good service*

For highly abrasive material, Hendrick Perforated Metal Plate is heat-treated by an exclusive process and maintains uniformity of mesh throughout an unapproached length of service life. That's why it is both most efficient and most economical for vibrating and shaking screens.

The full clearance of Hendrick Perforated Plate minimizes clogging, and the ease with which decks can be changed cuts labor costs. It can be furnished—flat or corrugated—with any desired shape and size of perforations, in proper gauges of tank, high carbon, high tensile, and abrasive-resisting steels, and in other commercially rolled metals.

Write for Hendrick Perforated Plate Catalogue.



SEE OUR CATALOG IN SWEET'S

HENDRICK

Manufacturing Company

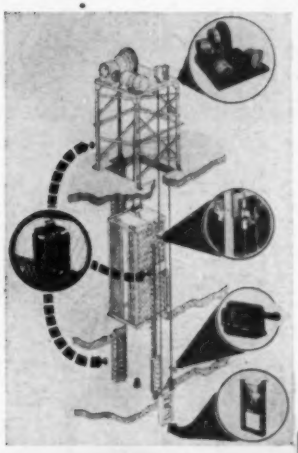
39 DUNDAFF STREET, CARBONDALE, PENNA.

Sales Offices In Principal Cities

Perforated Metals
Perforated Metal Screens
Architectural Grilles
Mitco Open Steel Flooring,
"Shur-Site" Treads and
Armorgrids

---

save time . . . save money with EHRSAM ELECTRIC MANLIFTS



Rapid, inter-floor transportation for your employees means more productive time. More production means more profit. Time is saved and your money is saved. Illustrated here is the electric operated, cage-type manlift made in 300 lb. and 500 lb. capacity. Other types available. Reasonable installation costs bring you real savings. Write today for complete information.

THE J. B. EHRSAM & SONS Manufacturing Co.

ENTERPRISE, Established 1872 KANSAS U.S.A.

Make Your Own

SINTERAGG

Light weight aggregate by the DWIGHT-LLOYD* Sintering Process on DWIGHT-LLOYD* Sintering Machines.

Over 40 years' experience sintering ores and nometallic materials.

SINTERING MACHINERY CORP.

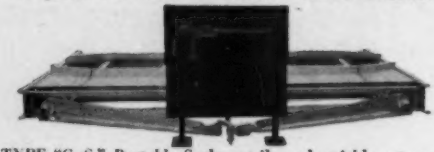
Netcong — N. J.

Reg. U.S. Pat. Off.

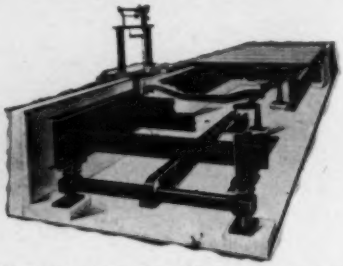
WINSLOW

TRUCK and TRACTOR TRAILER SCALES

For Quarries—Gravel Plants—Stone Crushers



TYPE "C. S." *Portable Scale*—easily and quickly set up—with preparation held to minimum.



TYPE "S" *Pit Scale*—for weighing trucks and tractor trailers—Platform lengths 18 ft. to 60 ft. inclusive.

WINSLOW SCALE COMPANY

TERRE HAUTE 1, INDIANA

Ask for Nearest Distributor—More Information Available on Request

GUARANTEED!

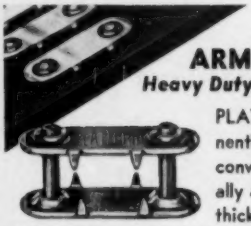
HOMER permanent "non-electric" magnetic pulleys are guaranteed to equal or exceed the performance of electro magnetic pulleys

With HOMER non-electric Permanent Magnetic Pulleys, you eliminate Power Failures; Burn-Outs; Atmospheric and Temperature restrictions; Wet or Dry locations, because HOMERS are not affected by these natural elements. Homers are available for light, standard or heavy-duty service. Write today for bulletins describing this line of GUARANTEED HOMER MAGNETIC PULLEYS.

The HOMER MANUFACTURING CO., Inc.

DEPT. 1-52 LIMA, OHIO

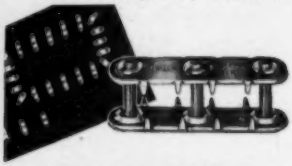
Producers of Magnetic Separator Equipment Since 1923



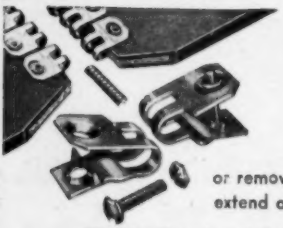
ARMSTRONG-BRAY

Heavy Duty Conveyor Belt Fasteners

PLATEGRIP Belt Plates permanently join the ends of heavy conveyor belts. Applied manually anywhere to belts up to 1¼" thickness, and of any width, they make a smooth, flush, flexible and dust-tight joint.



PLATEGRIP Repair Plates make it possible to repair rips or insert patches in worn belts.

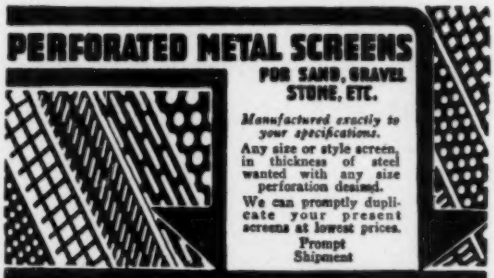


Hinged Plategrip Fasteners No. 500 make a strong flexible joint that can be parted by pulling out hinge pin—permit easy adding-on or removal of belt sections (as to extend or shorten belt).

Write for Plategrip and Hinge Plate Circulars.

ARMSTRONG-BRAY AND COMPANY

5394 Northwest Highway Chicago 30, Illinois



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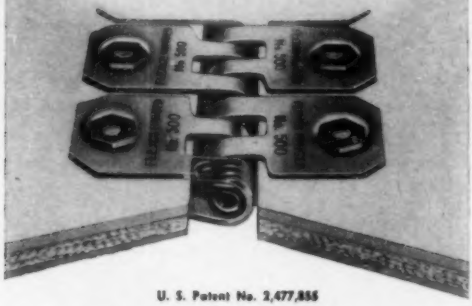

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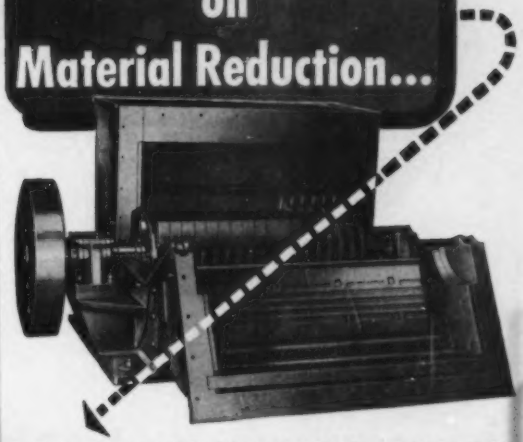

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HAMMERMILLS

Built to take 6" feed and reduce to agricultural limestone, ¾" stone and other small sizes in *one operation!* Crushing occurs on unusually heavy breaker and grinding plate before reaching grate. This permits grates to be used for sizing only, minimizing wear. The result; more output, more quickly reduced at less operating cost.

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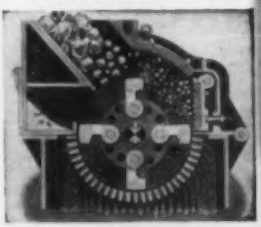

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WC48-4

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The Independence Drive is being powerfully promoted throughout the nation by radio, television, publication advertising, posters, car cards, and special ceremonies. The public is *extra* Bond-concious at this time. Make sure your company adequately informs your employees that the convenience of "automatic" Bond buying is available through your Payroll Savings Plan.

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The Treasury Department acknowledges with appreciation the publication of this message by

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24"	4	1/8"	1/32"
24"	5	1/8"	1/32"
26"	5	1/8"	1/32"
30"	5	1/8"	1/16"
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1600	*Al. Ch.	ANY	257
1200	*G.E.	MT-26	277
1000	*Westg.	CW-424	500
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700	*Westg.	CW	720

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4—Tyler Vibrating Screens

CARPULLERS AND LOADERS

1—20,000# Lidgerwood Car Spotter AC
1—20,000# Amer. Hoist Spotter
1—5000# Jeffrey Carspotter AC
1—6000# Brownie Carspotter AC
1—5000# Link Belt Carspotter AC
1—Stephens-Adamson Heavy Duty Loader & Piler. 7½ HP. AC. Cap. 350 TPH ORE, Fertilizer & Sand. Portable on wheels. 30" belt.
1—3 yd. Sauerman Scraper bucket Sys.

MISCELLANEOUS

2—2½" Dayton Dowd 300 GM Cent. Pump, AC motor
1—48" Colo. Simplex Classifier
1—11B Sullivan Cutter with Bowdil bar, chain and bug duster, 80 HP DC motor.
1—PL1114 Joy Elevator, 10 HP DC, permissable motor.
1—B. E. 3¼ yd. Electric Shovel B85.

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3—1949 Int'l. KBS10 tractors
3—Int'l. Model KR11, 161" w.b., mixer trucks
5—Tank trailers for gas, oil, or water
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Equipment priced for quick sale

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Smith 2 yd. USED Hi-Discharge Mixer mounted on Diamond T COE truck
Rex "27E" Used Paver
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Gilson "14" USED Pulverizer. Cheap
Gilson "22" NEW Pulverizer. Big discount
Universal No. 3 REBUILT Pulverizer
Schramm "315" USED Compressor
Lorain "30" USED ½ yd. Dragline
LeTourneau "J-12" USED 12 yd. Scraper

EIGHMY EQUIPMENT COMPANY
ROCKFORD ILLINOIS

RELAYING RAIL
TRACK ACCESSORIES
Midwest Steel Corporation
CHARLESTON 21, W. VA.
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Vibrating Screens - Conveyors - Feeders Scales - Crushers - Conveyor Idlers

Guaranteed Equipment — Immediate Shipment

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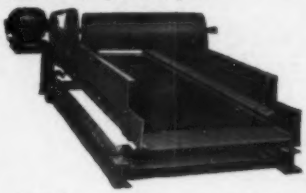
Heavy duty eccentric shaft types. 1 to 5 decks; screen sizes to 5x14. Priced from $1350 including cloth or plate.



Eccentric weight type screens. 1 to 3 decks; sizes to 3'x8'. Including cloth or plates, from $395.00.

PORTABLE FLIGHT CONVEYORS

Mounted on rubber tires and adjustable undercarriage. All welded structural and sheet steel; double guided heavy duty chain; steel flights to 6"x24". Electric or gasoline power. Priced from $450.00.

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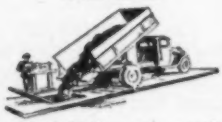

15 Ton Truck Scales.....$450.00
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Others to 50 ton capacity. All scales complete with structural steel weighbridge. Parts and weighing beams for most makes of motor truck scales.

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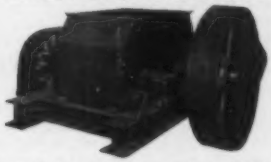

10 to 20 tons per hour capacity....$395.00
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Complete with Hopper

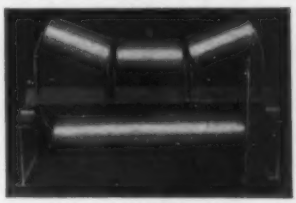
HEAVY DUTY FLIGHT CONVEYORS

Any length. Flights up to 6"x24". All welded structural and sheet steel. Heavy duty, double guided chain. Prices from $495.00.

CONVEYORS — PICKING TABLES

Troughing idler conveyors—picking tables. Any length, belt widths to 60". Prices from $395.00.

TROUGHING IDLERS AND ROLLERS



All steel. Interchangeable with other well-known makes. Replaceable precision ball bearings. No bearing adjustments required. Easy to start and will run in cold weather. Rust-proof ball races; maintenance is negligible. Build your own conveyors; we have standard sections, head and tail pulleys, take-ups, drives, idlers, speed reducers, sheaves, belting, etc.

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14" belt	$18.50	24" belt	$21.00
16" belt	19.00	30" belt	22.00
18" belt	20.00	36" belt	23.00
42" belt			$24.00

1-Roll Return Idlers for these sizes:

24" belt	$8.25	36" belt	$ 9.75
30" belt	9.00	42" belt	10.50
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No. 78 Type SH, spiral classifier, 32' long. Unused, in original crates.

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36"x24", Type A2, ball bearing, direct connected to 50 HP TEFC motor.

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8'x6' Oliver, S.S. Type 304, complete with S.S. Receiver & Vacuum Pump. Unused.
8'x10' Oliver, redwood stave shell, w/Motors, Vacuum Pump, Filtrate Pump.

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3'10"x16' Link Belt, Roto Louvre.
4'x30' Traylor.
7'x45'x½" Link Belt.
30'x30'; 6'x40'; 6'5"x6'; 7'x60'; 7'x70'.

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6 Complete Diesel Generator Units, 125 KVA Worthington 8B5, 600 RPM, 3/60/230 or 460 V. with Evaporative Condensers, Air Compressor, Switchboard and Silencers. New 1943. Test run only.

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1—100 KW, Hercules DNX6, 3/60/127/220/440. Unit completely enclosed.

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We have several Allis Chalmers Gyratory Crushers in sizes 4 and 5, D & K Models, which we guarantee are in good operating condition. If interested contact us as the prices are right.

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Kennedy 10"x20" crusher, roll bearings, top eccentric
Champion jaw crushers: 7¼x13 and 9x15
Farrel B 12"x24" jaw crusher
Buchanan B 10"x16" jaw crusher
Farrel A 10"x16" Blake jaw crusher
Jeffrey single roll 18"x18" coal crusher
Heavy duty double roll crusher, 28"x18"
Stevens-Adamson 18" KNITTEL crusher, ball bearing
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Laboratory grinders and peg crushing rolls
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Bucket elevators open and enclosed, complete
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New 36" belt idlers with Timken bearings
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New 24" and 18" belt idlers and belt and pulleys
Reconditioned 16" belt conveyor plain bearings
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Feeders for conveyors and elevators
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Ten ton, 20' span, 3 motor electric overhead crane
1-R new airhoist 10,000# cap., on trolleys
Seven magnetic belt pulleys
Yale & Towne 5 ton Kron crane scale with dial, new.
Selected gear reducers from ½ to 75 hp.
Gearmotors and variable speed motor units
Electric and air cable hoists. Reeves drives
Bin gates: 12"x12", 15"x15", 20"x20" openings

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BELT CONVEYOR: 2950 ft. all steel, 36", with roller bearing troughing and return idlers, 5 ply cord belt, 42 oz. duck, ⅛" top, 1/16" bottom, new 1947, slightly used.
HAMMER MILL: Jeffrey 24x36, type B-3, roller bearings, V-belt drive, NEW condition.
AIR SEPARATOR: Gayco 14 ft. with 30 H.P., 220/440 volt motor and V-belt drive, new 1947, used only two days.
LIMA SHOVEL BOOM: 2 yd. Dipper and stick for model 802, condition like NEW.
GYRATORY CRUSHERS, SPECIAL: Allis Chalmers Superior McCully 30", mananese fitted. Traylor 16".
GYRATORY CRUSHES: All sizes 8"x 30" to 42"x134".
JAW CRUSHERS: Farrel 15-B, size 24x36", manganese fitted, with or without motor and drive. Pioneer 24x36, portable, with or without diesel power. Also, in sizes 4x6 to 48x60".
REDUCTION CRUSHERS: Symons 2 ft., 3 ft., 4 ft. and 5½ ft. Telsmith 24" Gyrasphere. Good Roads 1040. Allis Chalmers R322.
LOCOMOTIVE: Plymouth 25 ton, standard gauge with caterpillar diesel motor.
SCREEN: 5 ft. x 14 ft., double deck, 15 H.P. motor.
SHOVELS: Bucyrus-Erie model 170-B, 6 yd. capacity, 2200 volt, A.C., built 1947.
TRUCKS: 30—Euclid bottom dump, also end dump, with rock bodies, Cummins 150 H.P. and 275 H.P. diesel motors, with booster steerin.
GOODRICH SUPER LONG LIFE CORD CONVEYOR BELT (NEW): Large quantity of Goodrich Belt 42" wide, 6 ply, 42 oz. duck, 7/32" top cover, 1/16" bottom cover, on original reels, all NEW NATURAL RUBBER, with or without mechanical parts.

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Type 37 Crawler
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A-1 Oper. Condtn.

Big lot New

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NEW 2¼ cu. yd. ESCO SHOVEL DIPPER complete w/dogleg bail, teeth, wt. 7000# for LINK BELT SPEEDER Model K580. $1,500.00.

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1—18" x 36" Farrell Jaw Crusher
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1—24" Telsmith Cone Crusher
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ELEVATOR. 31-foot center steel enclosed belt elevator, 10" malleable buckets 18" center, reinforced top section, hook; Falk 3DA Herringbone Speed Reducer connected as unit to 3-HP enclosed ball-bearing Crocker-Wheeler Motor, roller chain drive.

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G. E. 70 ton Diesel Electric—#13199—Now Nov. 1941—Best Buy in U. S. A.

2—Whitcomb gas, 6 ton, 24" ga.
Plymouth Type ML—30 ton diesel—Std. ga. New 1943 —operated 2500 hrs.
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Chi.-Pneu.—PM-4-2—#43917—445 C.F.M.—75 hp. —3/60/440—Like New.

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2—American S.L., 10 ton, 75' boom.
1—American 70 ton @ 120'—125' boom—complete with American 3 Drum—250 H.P. Gas Hoist.

American 20—100 Guy Derrick—115' mast—100' Boom — complete with American Mod. 100—3 drumhoist with swinger—75 H.P.—3-60-440. New 1947 and used one job.

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28—Western 20 yd. Air Dump.
10—70 ton—4 Pocket Hopper Cars—P.R.R. type H-25.

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Orton 30 ton Diesel—Cat. D-13000—50' Boom—#42360.
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Caterpillar D 17000 Power Unit 3S-Series. Inclosed clutch used 500 hours.

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"American" Model 825-MD 25 Ton Diesel Locomotive Crane, 50' Boom, Murphy Model ME46 Diesel, New Fall 1945, like new condition.

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1—2¼ yd. Mdl. K570 Link Belt Diesel Crawler Crane #2215, with 50-65-70 or 85' boom and 17'9" jib, high gantry, hydraulic controls, D17000 engine. Will handle 47½ ton. Weight 148,000#.
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1—1½ yd. P&H Model 655-A, combination shovel, dragline and crane, Ser. 6426, powered by Caterpillar Model, D13000 Diesel engine, Crane boom 75', shovel front 24' boom, 18' sticks, 1½ yd. manganese dipper.
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WE OWN 13 CRANES NOT SHOWN ON THIS LIST. SEVERAL CRANES LISTED ARE IN OUR RENTAL DEPT. ONLY.

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1—50 ton American Model 20—100 all steel guy derrick, Ser. No. 1184, with 115' mast, 100' boom, 16' bullwheel. Capacity 50 tons at 38' and 20 tons at 98' radius. LATE MODEL. LIKE NEW.

5—30 ton Wiley brand new all steel stiffleg derricks. Model F, 60' boom, 32' mast, 37'3½" stiffleg, 27' sills, 12' bullwheel, complete with blocks. Rated 30 tons at 38' radius.

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2—10 ton American all steel guy derricks with 100' mast, 90' boom. Capacities 20,000# at 50' and 10,000# at 88' radius.

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Portable and stationary, electric diesel & gasoline power, sizes from 2 cu. ft., 1,000 cu. ft.

TRUCK CRANE

½ yd. Universal Crane #873, with 25' boom, mtd. on 10 wheel Hendrickson pneu. tired truck.

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1—15 ton Vulcan std. ga. locomotive. Ser. No. 2063. With special MCB couplings Powered by 6 cyl. LeRoi Mdl. JM8 gasoline engine. Equipped with 4-wheel air operated brakes with 2 cyl. Westinghouse air compressor. Complete with starter and generator.

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3—Smith 3 Cu. Yd., 1948 Model, High-discharge on White Tandem Drive Trucks, reconditioned, painted, ready to go.
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Special.—Eagle bucket loader mounted on Federal truck, dual pneumatics rear

Pioneer duplex portable plant	Lima 750 dragline	Morris 10" gravel pump
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Used Atlas Diesel Engine Model 5EN668, 5 cylinders 9" Bore x 10½" Stroke, 200 H.P. @ 514 R.P.M. with Air Compressor. Starter and Compressor excellent condition, located at Teterboro, N. J.

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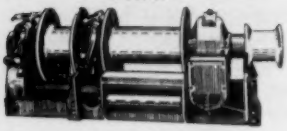
NEW



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$199.75 EACH

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HAND WINCH
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$37.50 EACH

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Two-Speed, Hand-Operated Winch. Complete with hand brake. 2-Ton Capacity; tested for 3 Ton.

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SINGLE CABLE SLINGS
20 Ft. Long. Socket opening 3" x 1½". ⅝" Wire Cable. Now —in original packages.

$12.00 EACH

DOUBLE CABLE SLINGS
25 Ft. Long. Double rope steel cable, ½" diameter cable. Now —in original packages. 7 Hooks. Regular Retail Price $75.00

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TERMS: Net 10 days to rated concerns. Others please send check with order. All items F. O. B. Cincinnati

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40 ton Orton diesel locomotive crane
30 ton Davenport diesel locomotive
1½ yd. Lima 601 diesel shovel-dragline
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150 HP Kewanee portable boilers
¾ yd. Northwest 25 gas crane-dragline
2 yd. P. & H 855 dragline. New 1948

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Large gravel pit, located on Route 11 Gouverneur, New York, near the St. Laurence Seaway. Crusher vibrating screens, two late model shovels, water for washing available. Four sets complete silo building forms with enough silo orders for two years' work.

GEORGE COOKE
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1—30 Ton Vulcan Diesel mechanical standard gauge locomotive, built 1941, Cat. D-17000 engine, first class.

1—15 ton Plymouth diesel locomotive, 36" gauge, built 1947, used less than one year.

1—7 ton Plymouth standard gauge gasoline locomotive, built 1941, Buda engine, completely rebuilt.

5—Euclid trucks, 15 ton rear dump with 12 yd. bodies. Cummins diesels.

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BIRMINGHAM 1, ALABAMA

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Four Super C Tournapulls—Euclid Trucks—Locomotives—Dump cars—Cranes.

Rotary Kilns—Dryers—10' x 90'—10' x 170' others. 250 KVA—440 volt—G. E. Diesel Generator Set—Like new.

48" Gyrosphere Crusher — Gyratory Crushers — Roll Crushers—Cone Crushers—Jaw Crushers—60" x 42"—25" x 40" R. B.—24" x 36"—20" x 36"—18" x 36"—15" x 36"—10" x 36".

Complete crushing plant including 42" x 36" Jaw—others.

Rod Mills—Ball Mills—Feeders—Classifiers—Tuggers—Mine Hoists—Motors—Transformers—Conveyors—Portable Gravel Plants—Blast Hole Drills.

5040 Dixie Mogul Hammer Mill—D-13000 Caterpillar Engine.

Many other items.

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Theatre Building Crosby, Minnesota

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1—15 Ton 255A-P&H Truck Crane
1—20 Ton Bay City Truck Crane
1—¾ yd. Koehring Model 304 Crane
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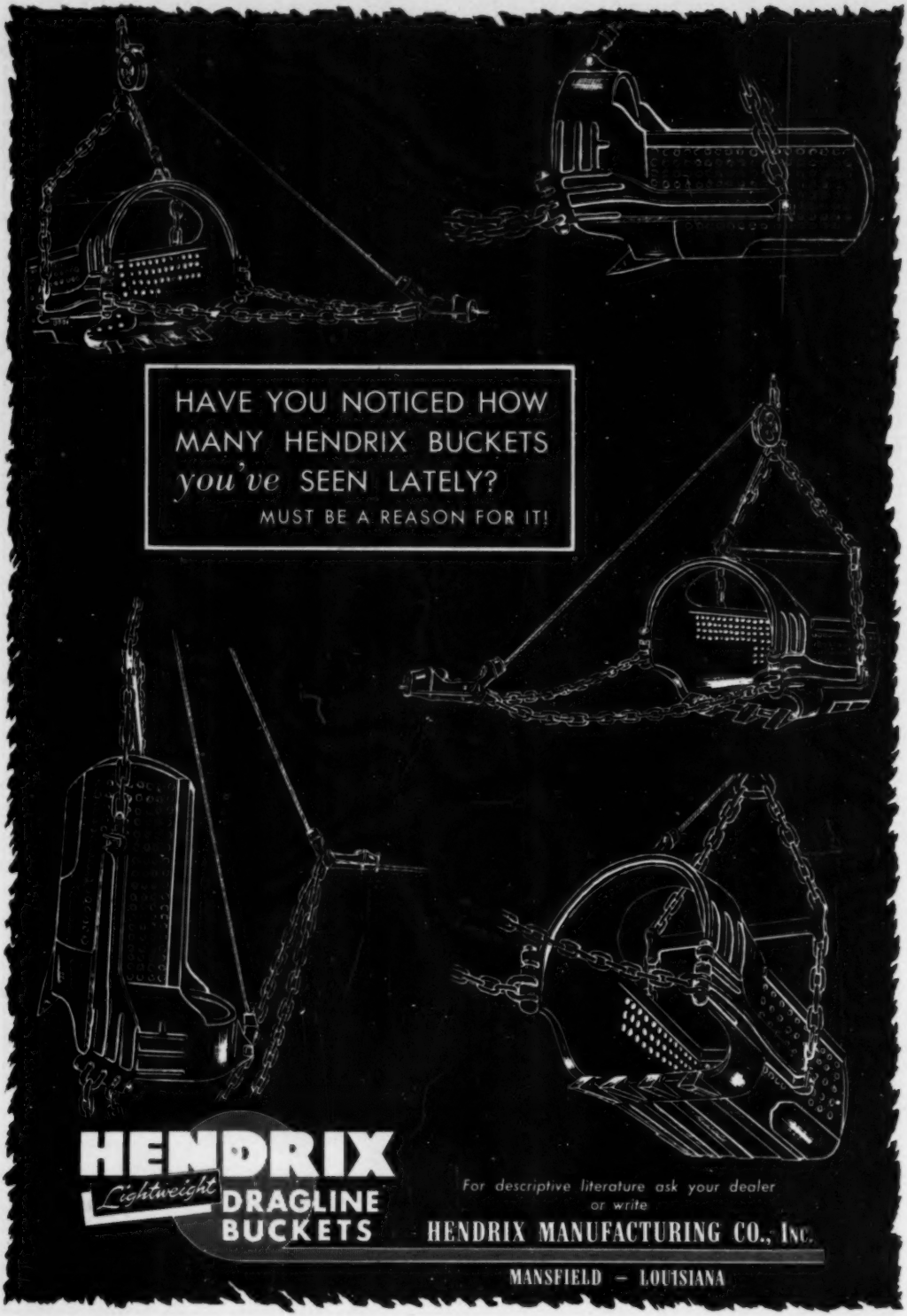
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